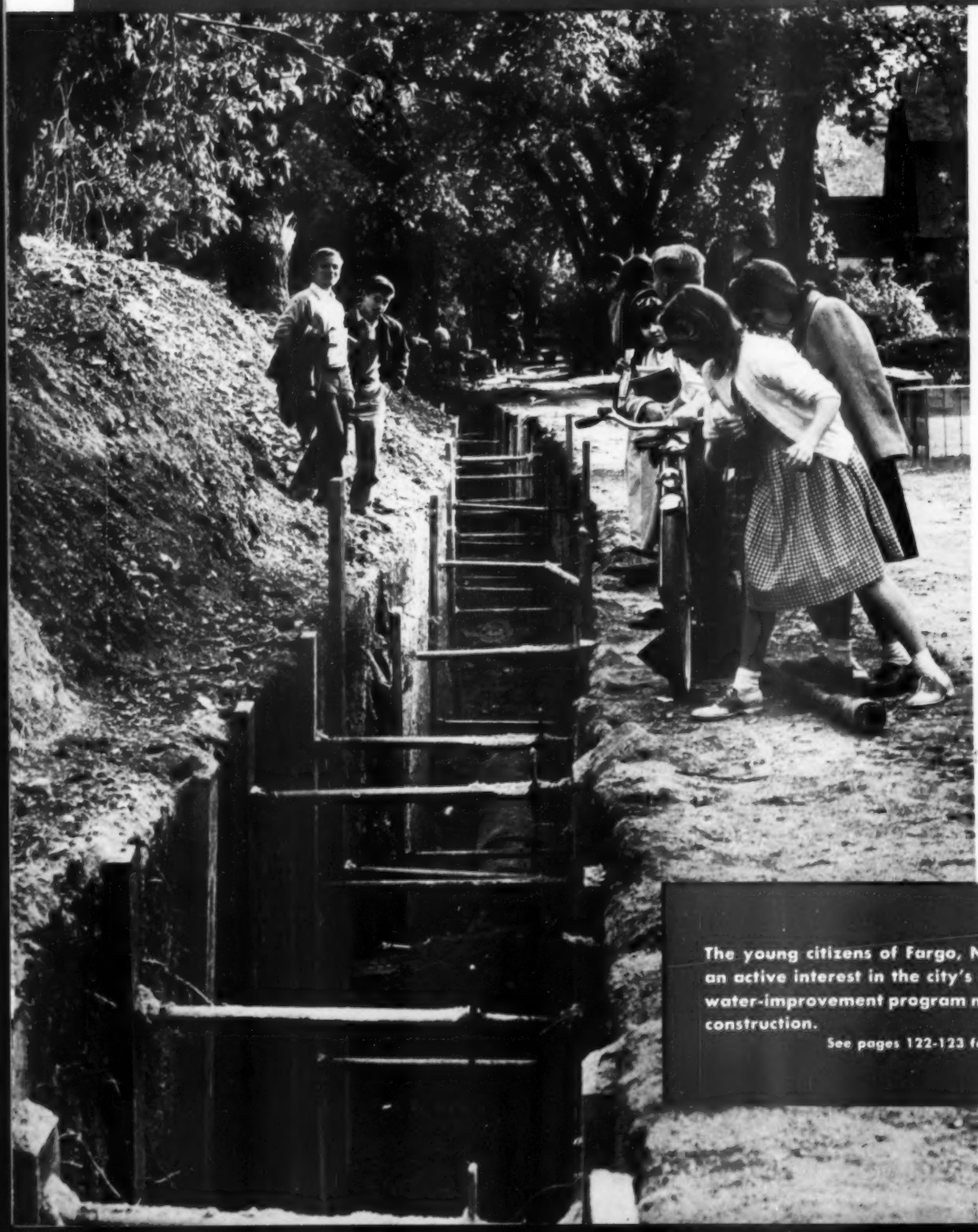
The American City

JULY 1955



The young citizens of Fargo, N. D., take an active interest in the city's extensive water-improvement program now under construction.

See pages 122-123 for the story.

Contractor
HELDENFELS BROTHERS
Corpus Christi, Texas

Laying hot-mix Texaco Asphaltic Concrete on

12 miles of Corpus Christi streets

Old streets in six residential sections of Corpus Christi, Texas, needed resurfacing. Busy 57-foot-wide Bonner Boulevard required a complete pavement, including base and wearing surface. Hot, plant-mixed Texaco Asphaltic Concrete was used exclusively in this city's entire 12-mile street improvement program.

On Bonner Boulevard, a 6-inch thickness of Texaco Asphaltic Concrete was laid directly on the prepared subgrade. It consisted of a 4½-inch coarse-graded asphaltic concrete base, laid in two courses, topped by a 1½-inch dense-graded asphaltic concrete surface. This all-asphalt type of pavement is capable of absorbing heavy impact year after year, with a minimum of upkeep. It is asphalt's answer to the gruelling traffic served by a city's principal thoroughfares.

In the residential areas of Corpus Christi, a 1½-inch dense-graded Texaco Asphaltic Concrete surface was laid on a number of old asphalt streets. The new surface forms a perfect bond with the old, economically adding many additional years to the long service already delivered by the original streets.

Texaco Asphalt Cements, Cutback Asphalts and Slow-curing Asphaltic Oils for 50 years have provided city officials with many answers to the street paving problem. Helpful information on all types of asphalt construction for city streets is supplied in two free booklets, which can be obtained without obligation by writing our nearest office.

Bonner Boulevard, one of Corpus Christi's main thoroughfares, is paved with 6 inches of hot, plant-mixed Texaco Asphaltic Concrete, laid on the prepared subgrade.

A new 1½-inch dense-graded Texaco Asphaltic Concrete surface economically adds many years to the life of the old asphalt pavement on this Corpus Christi residential street.

THE TEXAS COMPANY, Asphalt Sales Div., 135 E. 42nd Street, New York City 17
Boston 16 Chicago 4 Denver 1 Houston 1 Jacksonville 2 Minneapolis 3 Philadelphia 2 Richmond 19

TEXACO
REG. T. M.

TEXACO ASPHALT

JULY 1955

The American City

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Water Project Recalls City's History

There is a bit of historical detail in connection with Defiance and the Defiance water works which has not been mentioned in Mr. Hazelswart's article and may be of interest to the reader. (See June issue, "Water Plant Expands to Meet Demands, p. 122).

Fort Defiance was Anthony Wayne's base of operation in 1794, when he fought the British and Indians in that area. "I defy the English, the Indians, and all the devils in hell to take it," he boasted. Peace has returned to this spot. When last visited, purple martins were nesting in some of the cannons which have a clear sweep of the confluence of the Maumee and Auglaize rivers. A short distance above this point is the Defiance water-works intake on the Maumee River.

Anthony Wayne was not the last man to make history in that city. In 1920, the Defiance water works was built, incorporating equipment for recarbonating lime-softened water. This was the first recarbonation of a public water supply in this country, a feature which is now an important part of all lime-softening plants.

The Maumee River drains rich agricultural land in northwestern Ohio, eastern Indiana, and southern Michigan. The water has a high organic content as a result of agricultural drainage and the municipal sewage and industrial wastes from several small villages and the cities of Lima, Ohio, and Fort Wayne, Ind. We consider the Maumee water a very difficult one to treat.

The city is to be congratulated upon having the foresight to provide a plant of ample capacity, one which features the last word in softening plant operation and is well operated by Mr. Hazelswart.

F. H. WARING
Chief Sanitary Engineer
Ohio State Department of Health
Columbus, Ohio

Vermont's First Sewage-Treatment Plant

We do not wish to detract from the story of Burlington's sewage-treatment plant ("First Plant in Vermont," June, p. 110). Nevertheless, the title may be misleading. St. Albans has had a treatment plant since 1938; and Manchester built a sewage-treatment plant at about the same time. The Burlington plant is, of course, the first one built in the state since the new stream pollution control laws of 1949 were adopted.

The State Department of Health considers the Burlington plant a major step in the protection and improvement of Lake Champlain—particularly pleasing since the plant services the largest municipality in the state. We hope that this will serve as an example to other communities located near the lake and on rivers which are tributaries to the lake so that other sewage treatment plants will follow within a reasonable time.

EDWARD L. TRACY, *Chief*
Bureau of
Environmental Sanitation
Burlington, Vt.

Does Your City Know About Microwave?

"What is microwave?"

Microwave is radio equipment operated at frequencies far, far above those normally associated with the term "radio." At these frequencies, even though the general approach remains the same as for lower frequencies, some specialized considerations must be applied.

Probably the most important characteristic of microwave is its ability to transmit many channels of information simultaneously between the terminal points without the use of wires. The same basic radio terminal equipment is used regardless of the number of channels of information carried. Hence, the cost of the system is not directly proportional to the number of channels employed.

Microwave equipment is a primary message carrier between two points. Microwave is most practical as a trunk line between groups of individual communications points, and is not suitable for short range com-

THE AMERICAN CITY

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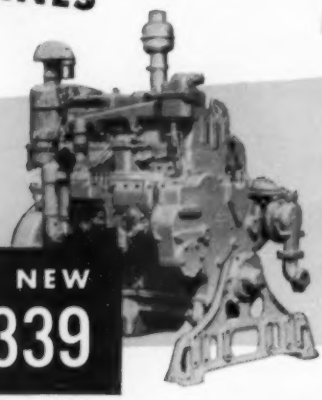

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municications to many scattered points.

Microwave has been utilized in a limited number of larger municipalities to date. The characteristics of the 5 to 25 mile communications trunk between points, the need for 3 to 24 channels of communications between two points and the ability to load the system with voice, teletypewriter, telegraph, telemetering and control signals to make effective use of the facility will be met in only a few instances in smaller cities.

Typical applications are: a control and communications circuit between downtown police headquarters and two-way radio base stations located on a distant mountaintop; a number of administrative communications channels between two widely separated municipal buildings; control and communications facilities between the city water (or sewerage) headquarters and a remote watershed-reservoir pumping station (or sewage treatment plant); or, control and communications facilities between physically separated municipal electric utility generation and distribution plants.

These are merely types of applications now employing microwave or contemplating its use. The future is bright for municipal microwave communication facilities, limited only by city management imagination.

ROBERT L. BORCHARDT
Communications & Electronics Division, Motorola Inc.
Chicago, Ill.

Scooter Cost Questioned

May we take this opportunity to question some of the figures presented by Mr. R. L. Rowlin in his story, "Walking Is too Costly," (May, p. 104). The article concerns itself to a great extent with the operation of nine Cushman motor scooters and lists the unit cost per hour at the very nominal figure of $0.138.

However, Mr. Rowlin goes on to state that these machines have had no easy life and have had to undergo many repairs because of wrecking due to careless handling. If the analysis of the cost of repairing the machines due to wrecks were subtracted from the unit cost per hour, then we feel sure that he would present a substantially better picture of the scooter operation.

He also refers to electric-powered cars that have proved popular. We also manufacture electrically powered units that have been designed not only for light hauling and convenient transportation, but also for use on golf courses. Cushman transportation is able to meet Mr. Rowlin's needs, regardless of whether he wants gasoline or electric power.

J. H. CARRIER, *Manager*
Sales and Advertising
Cushman Motor Works, Inc.
Lincoln, Nebr.

Ten Letters from Chambers of Commerce

AS THE AMERICAN CITY'S subscribers are aware, the articles and items published from month to month are addressed mainly to the major categories of the magazine's readers—mayors, city managers, municipal engineers, purchasing agents, city planners, and heads of municipal departments.

Important unofficial groups of readers whose influence for civic development is becoming increasingly effective are the research bureaus and the citizens' organizations concerned with municipal efficiency and with city, town, and village improvements.

In a recent inquiry into reader habits and interests of this latter group, conducted by an exchange of correspondence with ten of the chambers of commerce that have been subscribers for THE AMERICAN CITY for many years, the following facts emerged:

Topics covered in the magazine of greatest interest to these chambers lead off with the general subject of civic development, and are followed by planning and zoning, water and sewage disposal, streets and highways, parks and recreation, street lighting, and government efficiency.

It appears that, in addition to staff members of the chambers of commerce, readers of THE AMERICAN CITY —in 80% of the cities—include board and committee members, this being so especially when the committees are studying some subject that has been covered in the magazine.

The chambers of commerce usually keep back issues of the magazine anywhere from three months to three years. Only one responding chamber keeps no back issues, but in that case they are turned over to local high schools for reference work. Other chambers also report turning over their back copies to public libraries when they have finished using them.

Eight of the ten chambers have active city planning committees or other committees that handle planning material. And in all but one case, either members of the chamber's board or other active members of the organization are also members of the local city planning commission or housing authority.

The chambers of commerce to which this inquiry was addressed were those of: Chattanooga, Tenn.; Florence, S. C.; Hamilton, Ohio; Hammond, Ind.; Long Beach, Calif.; Providence, R. I.; Louisville, Ky.; St. Louis, Mo.; Schenectady, N. Y.; Shreveport, La.; and Wausau, Wis.

New Zealand Inquires About Pipe

The article, "Jacksonville Picks Prestressed-Concrete Pipe," in the February issue of THE AMERICAN CITY (p. 131), inspired an exchange of letters with a New Zealand reader. Superintendent N. J. Butler sends us a copy of his answer:

Mr. H. Reynolds Bach
Engineer to the Board
Rutt Valley Drainage Board
P. O. Box 342, Lower Rutt
New Zealand

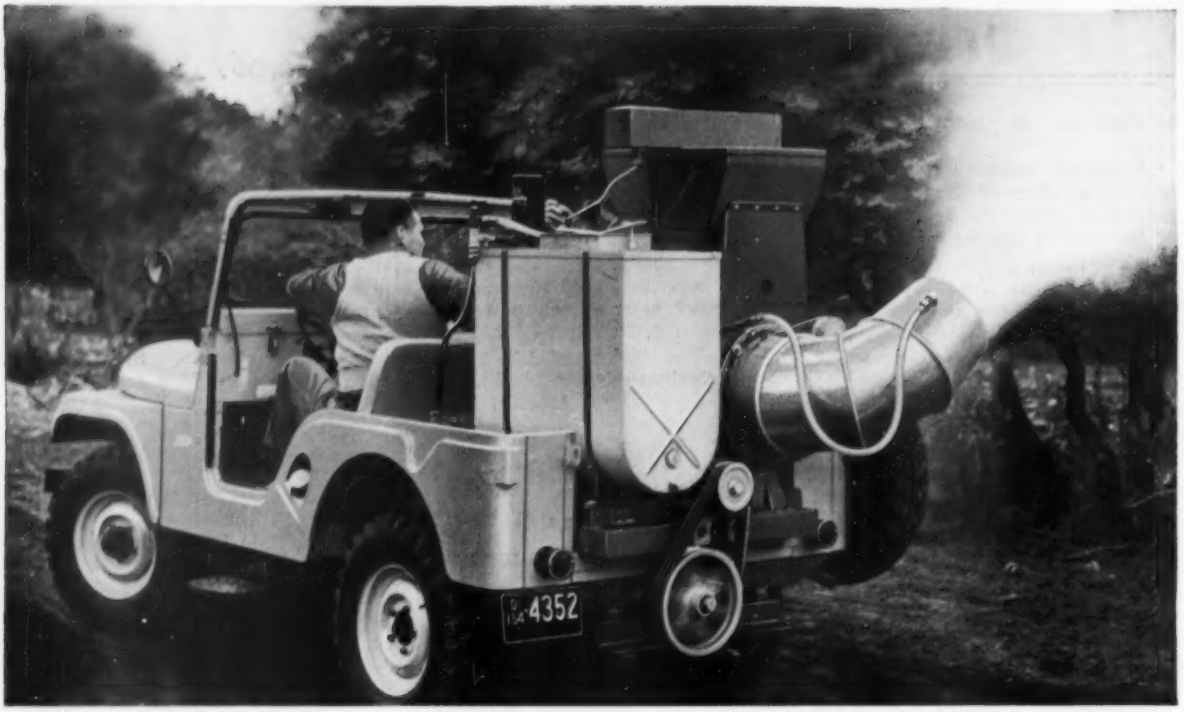
Dear Sir:

I was very glad to get your letter of May 13 after your reading the article . . . regarding our 23-mile water supply transmission main from the Illinois River to the City of Jacksonville, as a source of water supply.

I am particularly interested due to the fact that you recently let a contract for 11 miles of 51-inch-diameter prestressed concrete pipe for pressures ranging from 100- to 200-foot heads. I note that the circumferential prestressing wire is protected by using a gunite cover coat approximately 1 inch thick. This differs somewhat from the type of manufacture of the pipe we contracted for.

The type of joint and the joining materials are of great importance in the construction of a prestressed concrete pipeline and for your information I am glad to send you herewith complete information regarding the prestressed concrete pipe, joints, fittings, etc., used in the construction of our pipeline. . . .

N. J. BUTLER
Managing Superintendent
Water, Light, Power and Sewer Departments
Jacksonville, Ill.



Spraying. The Universal 'Jeep', with power take-off, operates many types of sprayers and dusters. With the extra traction of its 4-wheel drive, the 'Jeep'-sprayer unit reaches remote places for mosquito and weed control work—over sand and soft ground—up 60% grades—where other vehicles can't go. But it shifts easily into conventional 2-wheel drive for speedy travel between jobs.

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Water Supply & Treatment

Water-Works Men Hold Record-Breaking Conference

NEARLY 2,600 water-works men and their wives gathered in Chicago last month to attend a record-breaking annual meeting of the American Water Works Association. Registrants came from as far away as Egypt.

Distribution systems received detailed attention in the discussions. Kenneth J. Carl, engineer for the National Board of Fire Underwriters, outlined specifications for a good distribution system that would provide adequate fire protection. He recommended the use of mains no smaller than 6 inches in diameter, particularly if they serve fire hydrants; minor branches should be interconnected at intervals of 600 feet with mains of equal or larger sizes. If the mains are laid on curved streets that are not conveniently "grid-ironed," the pipe should be 8 inches in diameter; arterial mains should be 12 inches in diameter.

Storage reservoirs should be located away from the pumping stations to improve over-all pressures. Hydrants should have a 6-inch gate valve connection to the street main, designed so that the combination creates no more than a 5-psi friction loss at 600 gpm. Gate valves in the distribution system, used to isolate certain sections of mains, should be placed at intervals of 800 feet in residential areas and 500 feet in industrial areas. At normal fire flows, a hydrant can be placed to protect an area of 110,000 square feet. Best practice dictates that one hydrant should be at each intersection, with a maximum interval of 500 feet.

Mr. Carl reported that today the average daily rate of water use is 140 gallons per person. In the past, the maximum day was considered 50% larger than the average day, and the peak hour, 50% greater than the maximum daily rate. This is still true in the larger cities. However, in many small, residential communities, the peak hourly rate may be 600% or more of the average daily rate.

Corrosion in water mains also stimulated much active discussion. When sterilizing new mains, Superintendent William Yegen, Bismarck, N. D., reported that he ran into trouble using excessively strong chlorine solutions. Water containing 10 ppm of chlorine residual is strong enough to sterilize the pipe if it is laid in accordance with AWWA specifications, he stated. In the past, he has used a 100-ppm residual chlorine water and feels that it damaged the pipe linings and produced red water complaints.

Lee Streicher, chief chemist, Metropolitan Water District of Southern California, also gave practical advice on corrosion correction. He recommended elimination of direct connections between dissimilar metals to avoid galvanic couples. If they must be used in the same assembly, he suggested the use of insulating couplings. He urged against the use of domestic softeners that remove all the hardness, particularly of Colorado River water. He urged the elimination of zinc stars and brass sand rings in water meters, and the use of copper and hard rubber rings in their place. He also suggested that meter-repair men buff and grease meter parts rather than acid-clean and rinse them.

Bloodworms, snails, and clams, in distribution systems and treatment plants came under discussion by W. M. Ingram, biologist of the U. S. Public Health Service, and Professor J. K. G. Silvey, North Texas State College. This aquatic life is occasionally found in water systems drawing from untreated surface supplies and even from filtered supplies.

The bloodworms come from eggs of the midge fly and can be eliminated by covering of the reservoir or by installation of rapid sand filters. A residual of 7 ppm of chlorine or 5 ppm of chlorine dioxide has successfully eliminated them and, in one instance, an application of 0.01 ppm of DDT to the reservoir also has been effective.

The faucet snail and the zebra clam will develop in certain raw-water lines. Heavy chlorination of 20 ppm at the inlet, continued until 7 ppm can be detected at the effluent end, will end their growth. Generally, they can be stopped at the plant by coagulation, filtration, and watchful operation. However, sometimes they will work their way through the filters.

If the plant has no filters, it can avoid trouble by use of an intake located in deep water, or by mechanically raking the shallow water to remove the food for the snails and clams.

Cement-lined, cement-coated steel pipe, 30 inches in diameter, came through a carefully conducted test with flying colors. E. Shaw Cole, vice-president of the Pitometer Company, New York, N. Y., reported that the pipe under test did not suffer serious cracks even when under deflections of 1%. This is equivalent to a trench loading of 8,000 pounds per foot, or 1.4 times the maximum design load. The pipe has a wall thickness of 5/16 of an inch, an interior mortar lining of ½ inch, and an exterior coating of ¾ inch reinforced with 13-gauge wire.

Calculations by the Barlow formula give the pipe a working pressure of 136 psi. When tested under this pressure, it developed two cracks with openings of 0.003 and 0.006 of an inch widths. At 172 psi, it developed cracks varying from 0.004 to 0.012 of an inch.

In a test trench with a 4-foot compacted backfill, it showed a deflection of 0.12 of an inch or 0.2%. The trench loading is equivalent to 5,680 pounds per foot.

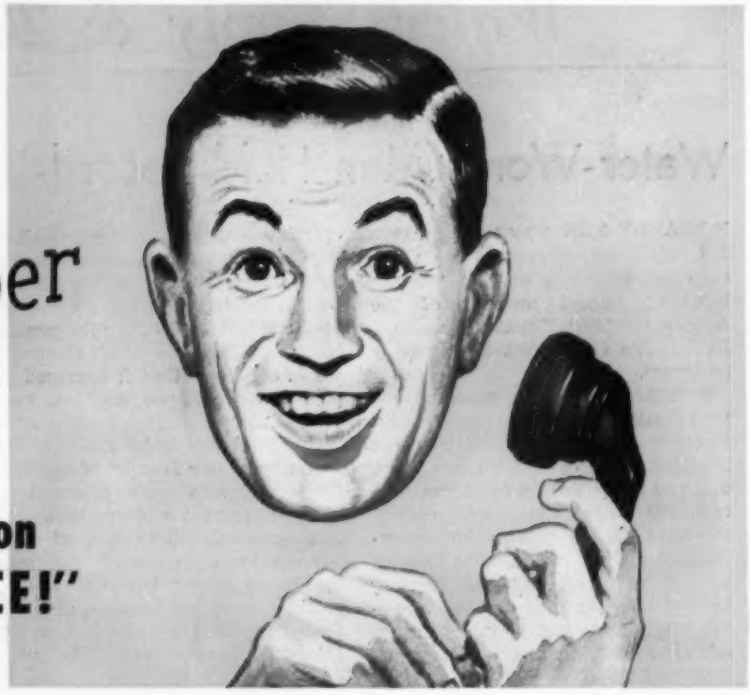
Filters might as well be designed hydraulically for rates of 4 gallons per minute per square foot of filter area even though they will be operated at only the 2-gallon conventional rate. W. W. Aultman, of Alvord, Burdick, and Howson, Chicago consulting engineers, reported that the cost of the extra hydraulic capacity is slight and that it gives the plant substantial capacity for peak loads.

Wells in coastal areas can be protected from destructive salt-water intrusion by an artificially placed salt-water barrier. F. B. Laverty, chief hydraulic engineer, Los Angeles County Flood Control District, reported the successful creation of such a barrier by recharging the water through abandoned wells. The barrier replenished the inland groundwater supply with only a small loss of fresh water. He found it necessary to exclude air from the recharge flow.

Better safety practices are badly

(Continued on page 229)

"This time... it's Mobil-Sweeper



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Parks & Playgrounds

Edited by JOSEPH PRENDERGAST, Executive Director, National Recreation Association

Combined Park and Recreation Department Gets Results in Fast-Growing California Community

Converted from an old and dilapidated softball field through the cooperative effort of several city departments, this attractive recreation area in Oxnard, Calif., known as Community Park, offers a variety of facilities for all ages and tastes.

THIS summer residents of Oxnard, Calif., are seeing visible proof of the sound management of their public leisure-time facilities under a combined park and recreation department.

The latest in a series of park facilities to meet the needs of Oxnard's 26,000 people was completed late last fall and is now in full use. A city block in size, the park provides an attractive addition to the community, plus a variety of recreation activities.

Before and After

Until last fall, this block was the site of a community center, remodeled from an old school building—vintage 1903—and what may have been the original artificially lighted softball field. The ball field was surrounded by an unsightly 10-foot board fence enclosing a dry, dusty field, rickety and unpainted bleachers, and a patched-up, chicken-wire backstop. Not only was the field an eyesore; it also attracted an undesirable element.

Now, instead of the ugly board fence and dusty ground, the wide expanse of grass is a popular recreation area used by hundreds of people of all ages. Four shuffleboard courts, a 10-hole putting green, horseshoe pits, croquet, volley ball, and table games are available. A spacious pavilion provides skating, dancing, hopscotch, and other games.

Portable cook stoves of the cast-iron variety have been installed. Tables and benches are provided for family picnics. An attractive children's apparatus area with swings, slide, and jungle gym is next to the picnic area.

Underground wiring brings power to 16 light standards, to provide night lighting for the shuffleboard, horseshoe pit, putting green, croquet court, and picnic area.

One of the means by which the park is kept in such attractive condition is the underground system of watering. Pipes provide outlets for snap-on Rainbird Sprinklers. The parkways and restricted areas have permanent sprinkler heads installed.

According to R. H. Abernethy, superintendent of the Park and Recreation Department, "hardly a day goes by without someone mentioning what an improvement has been made." The development of the area has focused attention on the poor condition of the adjacent Community Center Building, and the city is now planning to raze the structure and install a new and modern auditorium.

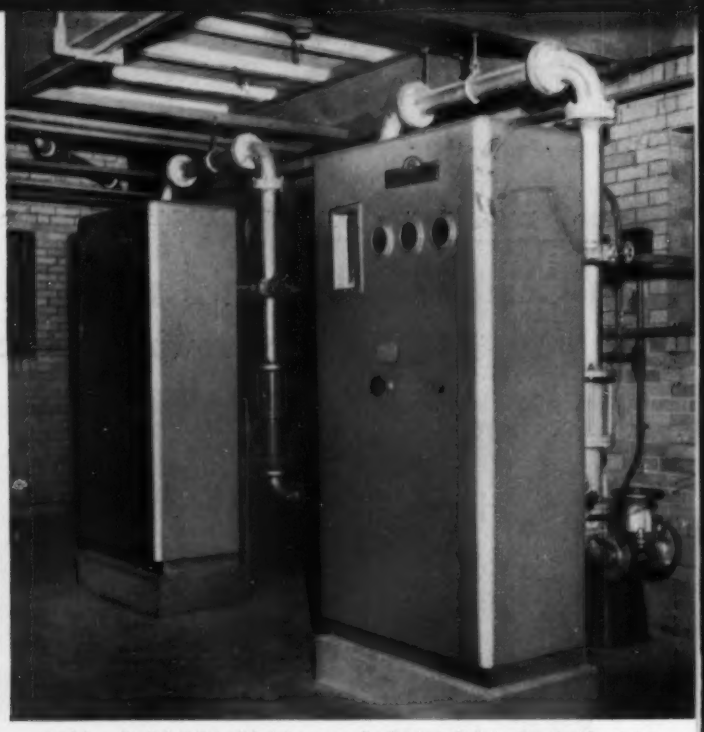
How Oxnard Did It

Like every successful recreation and park department, Oxnard's counted heavily on the cooperation of other city departments and civic leaders. Twenty-one thousand dollars was appropriated from the city's general fund to install night lights on a new ball field in a 10-acre park at the south end of town and also to develop the old ball field into a community park serving all ages.

To develop Community Park, as it came to be known, the Street Department dismantled the old fence and bleachers. Prison labor pulled nails and stacked lumber. The Park and Recreation Department laid out and installed the sprinkling system and planned and planted lawns, trees, and shrubs. The only labor contracted was for the installation of underground wiring, pouring the cement slab for the shuffle-

(Continued on page 171)

One of the two temporary chlorinating stations which served the Blackstone Valley Sewer District during the interim disinfection period. One of the Builders Chlorinizers can be seen in the background.



Builders Model HCVS Chlorinizers as finally installed in the Bucklin Point Sewage Treatment Plant in East Providence, R. I. Control can be automatic and proportional to flows of the plant influent flumes.

CHLORINIZER'S super-wide range pays dividends at Bucklin Point Sewage Plant

Two Builders Chlorinizers were placed in service by the Blackstone Valley Sewer District Commission over a year and a half prior to the completion of their Bucklin Point Sewage Treatment Plant at East Providence, R. I. These Chlorinizers — Model HCVS — were factory-equipped for super-wide range feeding . . . from 100 to 6000 lbs. of chlorine per 24 hrs. without changing orifices or meter scales. An interim disinfection program was instituted which took care of all sewage and wastes flows collected by the new interceptor system RIGHT FROM ITS FIRST STAGES — and charges could be levied against industries and municipalities as they tied in. Later, these same Chlorinizers were installed in the finished plant where they are now serving. Blackstone Valley Sewer District Commission reports the Chlorinizers have given completely satisfactory service both during the interim period and now that the plant is in full operation.

Find out why the trend is to Chlorinizer . . . for replacement, for plant expansion, for new projects. Write today for Bulletins to Builders-Providence, Inc., 358 Harris Avenue, Providence 1, Rhode Island.

CLARENCE V. HICKEY, OPERATING ENGINEER, SAYS:
"We've put Builders Chlorinizers to the test and they have stood up very well. These Chlorinizers have given reliable service for the past three and a half years . . . maintenance has been negligible. We have had no chlorine 'ice' troubles in cold weather and the Chlorinizers have been odor-free in operation."

BUILDERS-PROVIDENCE
DIVISION OF B-I-F INDUSTRIES, INC.
BUILDERS IRON FOUNDRY • PROPORTIONEERS, INC. • OMEGA MACHINE CO.
BIF METERS FEEDERS CONTROLS

Sewerage and Sewage Treatment

Sewage Plants Take Honors in Florida

Certificate holders are: (left to right, seated) R. E. Simon, Orlando; H. L. Berkstresser, Panama City; E. B. Becker, West Palm Beach; S. P. Robinson, Lake Wales; (standing) J. C. Harris, Bradenton; D. B. Lee, director of the State Board of Health Bureau of Sanitary Engineering, who presented the certificates; J. B. Sellers, Vero Beach; Jerry Sellers, Cocoa; C. M. Courson, Tampa; R. Brehm, Miami.

HIGHLIGHT of Florida's recent annual short course and conference in sewage and water treatment was the awarding of certificates of excellence for plant operation. The event, held in Gainesville, was sponsored by the General Extension Division of the University of Florida and the Florida State Board of Health as well as participating sewage and wastes agencies. D. B. Lee, director of the State Board of Health Bureau of Sanitary Engineering, presented the awards.

Orlando took top honors as the "best-operated sewage-treatment plant of any class," as well as runner-up place among filtration plants serving more than 25,000 water users. R. E. Simon is superintendent of the sewage-treatment plant; L. L. Garrett is water-department manager.

The Panama City Millville plant tied for first place with Lake Wales for the best-operated trickling-filter sewage plant. Harry L. Berkstresser is superintendent of the Panama City plant, and Sam P. Robinson is superintendent at Lake Wales.

Best functioning primary sewage-treatment plant is the Hooker's Point plant, Tampa, which was represented by its superintendent, C. M. Courson. Honors for activated-sludge sewage treatment went to Fort Lauderdale; J. A. Shepard, superintendent.

E. B. Becker, of the West Palm Beach water plant, accepted the certificate for the best-operated water-filtration plant among cities of over 25,000 persons. James C. Harris, representing the Bradenton water plant, received the award for the best water-filtration plant among cities of 10,000 to 25,000.

The Vero Beach plant was selected as the best lime-soda water-softening process among cities of less than 10,000. John B. Sellers is superintendent. The Cocoa water-plant superintendent, Jerry Sellers, represented his plant, chosen as the best filtration plant among cities of less than 10,000 persons.

Russell Brehm, plant manager of the Alexander Orr, Jr., plant at Miami, accepted the citation for the best lime-soda water-softening process serving over 25,000 people. The City of North Miami was cited as the best-operated soda-lime water-softening plant among cities of 10,000 to 25,000 persons.

No awards were made in the primary treatment plant class, although it was noted that the Winter Park plant was ineligible as a five-time winner. Comment was, however, that "operation at this installation continues superior in all respects."

Over a Billion for Water and Sewerage Projects

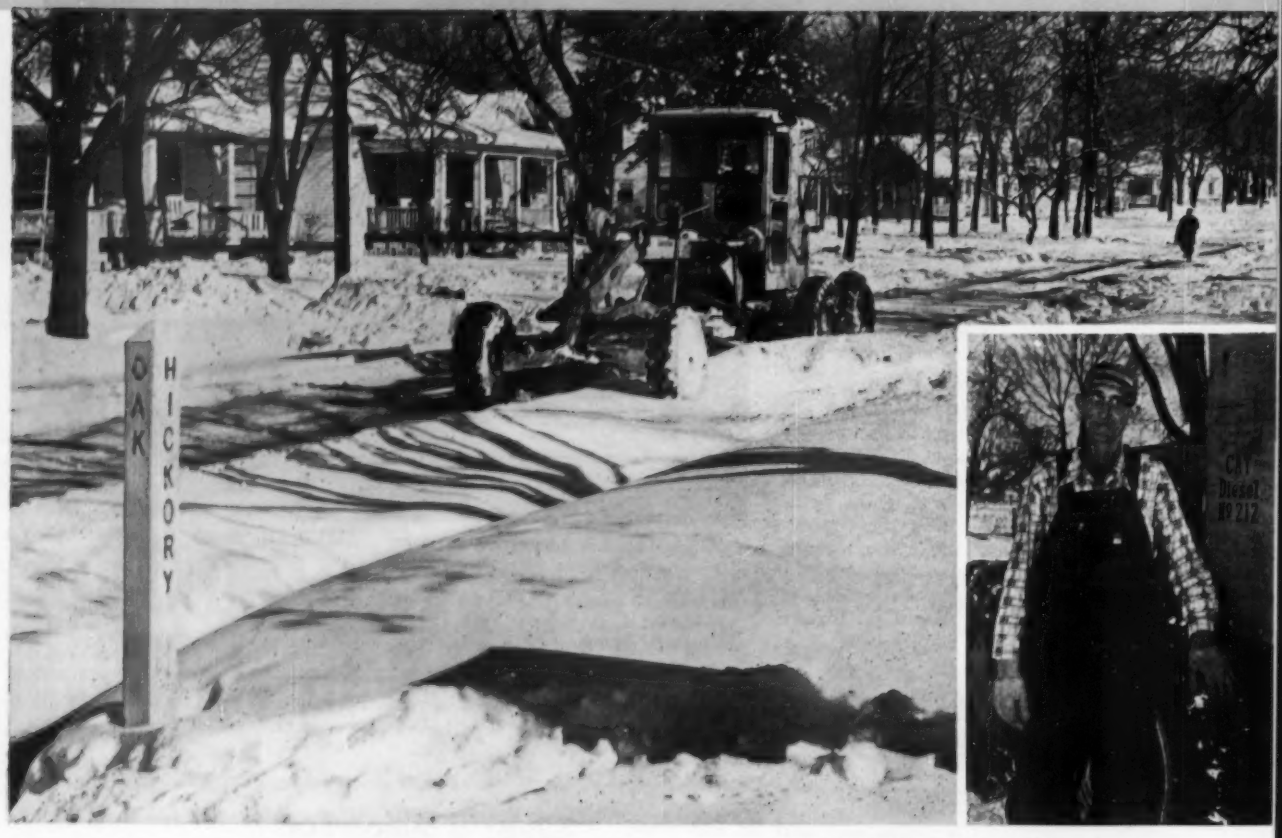
SPIRALING prices are dramatically reflected in an analysis of water and sewerage construction costs made public by the Water and Sewerage Industry and Utilities Division of the Business and Defense Services Administration, of the U. S. Department of Commerce. Originally estimated at $620,000,000 in 1949, the cost of 1,569 water and sewerage construction projects at present prices has risen to approximately $1,000,000,000

The projects are those remaining from a total of 7,707 that have been partially financed by federal government funds under two post-war planning programs in which the government has promoted nonfederal public works with interest-free loans. Sewerage facilities to be constructed number 1,243; water facilities, 326. The analysis, titled "Estimated Water and Sewerage Costs of Projects Remaining in the Advance Planning of Nonfederal Public Works Programs," is available at the Sales and Distribution Division, U. S. Department of Commerce, and at Commerce Department Field Offices at 20 cents a copy. The report features a city-by-city breakdown of the cost of water projects into supply, transmission, pumping, treatment, storage, and distribution. Sewerage projects are broken down into collection, pumping, interceptors, treatment, and disposal.

BUILDERS FROM FOUNDRY • PROPORTIONERS, INC. • OMEGA MACHINE CO. BIF FEEDERS CONTROLS

CAT* No. 212 clears 16-inch snow

FROM NEVADA, MO., STREETS



E. H. JACKSON, operator, and his No. 212. He says: "The only time it ever stops is when I shut it off."

Last December 29, the City of Nevada, Missouri, found itself buried under a 16-inch snowfall. With over 8000 population, Nevada covers a lot of area and has 30 miles of streets.

Before the snow had stopped, E. H. Jackson, operator of the city's Caterpillar No. 212 Motor Grader, was in the cab. When the picture was taken he and his machine had worked steadily for 30 hours and were prepared to keep going until the job was done.

This No. 212 was purchased in 1950. Before that Nevada had struggled along with a grader of another make. "That old rig wasn't worth a day's wages," in the words of the men who had to use it. Street Commissioner J. O. Hendrix got together with the city officials and they decided to buy a Caterpillar machine. They've been happy about it ever since.

What about your own city's snow clearance problem? Are you ready for next winter? Blizzards won't worry you if you have Caterpillar Motor Graders. They take snow removal in stride, just as they handle your grading and street maintenance the rest of the year. Every grader in the line—the 50-HP No. 212, 75-HP No. 112 or 115-HP No. 12—is completely designed and built by one manufacturer. Easy handling and blade adjustment and good job visibility make these machines popular with operators. And their year-round dependability, low maintenance cost and high resale value save money for the taxpayers.

Talk over next winter's equipment with your Caterpillar Dealer. Every machine he sells is backed by the best in service and genuine parts. See him now.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.

CATERPILLAR*

*Both Cat and Caterpillar are registered trademarks—®

99% OF ALL CAT MOTOR GRADERS EVER BUILT ARE STILL AT WORK

Public Safety

Big Voice Radio

"Big Voice" talks in Oak Park, Ill. Switch on microphone permits user to change from public address system to radio.

BY means of a toggle switch on the microphone, the operator of the "Big Voice" two-way radio can switch from normal radio transmission to public address operation. The "Big Voice" two-way radio is used as a truck-mounted public address system; as a "wireless microphone" public address system with the talk coming from a remote location via a portable "Handie-Micro-Talkie" transmitter or a "Handie-Talkie" radiophone; for two-way conversation between man in truck and man at remote location equipped with "Handie-Micro-Talkie" transmitter; for two-way conversation with base station or other two-way mobile units. When the microphone is switched to normal radio transmission, messages are beamed back to the base station via mobile antenna instead of being reproduced by the speaker.

For more information, write to Motorola Communications and Electronics Inc., Technical Information Center, 4501 W. Augusta Blvd., Chicago 51, Ill.

For Fewer Crashed Fire Trucks

MAYWOOD, ILL., has a new radio traffic-signal system which clears the route for fire and police cars. Emergency vehicles can now clear a path for themselves through traffic by automatically turning traffic lights red in all four directions as they approach each intersection.

A mobile radio transmitter on each emergency vehicle transmits a directional signal a half mile ahead. The radio signal is picked up by receivers connected with traffic lights, which turn red following a three-second period of flashing amber.

A special feature of the system is that it warns emergency-vehicle drivers of other emergency vehicles approaching the same intersections. Drivers of other emergency vehicles proceeding to the same scene see a rapid-flashing yellow light in addition to a red light at one or more intersections along their route, alerting them to an oncoming vehicle.

According to the National Safety Council, one out of every hundred fatal automobile accidents involves an emergency vehicle. Mr. V. Lee Cook, president of Electronic Protection, Inc., 452 W. Chicago Ave., Chicago, Ill., manufacturers of the equipment, said the system was perfected to prevent just these accidents.

More Fire Alarm Boxes?

FOR a hundred years the municipal fire-alarm box has been the first line of defense against fire. Yet many people still do not understand its operation. The smartest of them know that when the box is "pulled" a coded signal is transmitted to fire-alarm headquarters and, through wires and controls, from headquarters to the engine companies who respond in minutes.

Many cities allowed their fire-alarm systems to run down, but the majority never installed enough boxes in the first place for an adequate fire-alarm system. For years the National Board of Fire Underwriters has reported that few, if any, American cities have enough fire-alarm boxes. This situation should be remedied in cities that have fire-alarm telegraph systems and want to develop them to full efficiency.

Salvage Covers Important

A MAJORITY of cities deem it advisable to carry salvage covers on every piece of fire apparatus in regular service. Salvage work is so closely allied with other phases of fire-fighting that it is practicable to do effective salvage with the men available in the engine and ladder companies.

Salvage covers in use by various fire departments range in size from 9 feet by 12 feet to 14 feet by 18 feet. The 12-foot by 18-foot cover is the most generally used. It is recommended that each pumper carry at least two salvage covers and each ladder truck carry eight covers.

For further information write, National Board of Fire Underwriters, 85 John St., New York 38, N. Y.

* * *

MANY [volunteer] fire departments today take delivery on a piece of fire apparatus, listen to instructions from the delivery engineer or salesman, and then it is theirs. Maybe one, three, or five men were around when the unit was delivered and that is all who know anything about it. Some men drop out or are exempted and the department finds itself without anyone who knows how to operate the apparatus.

RUSSELL D. SALAK, Secy.-Treas.
Nebraska State Vol. Firemen's Assn.
Schuyler, Nebr.

What are the men doing?

They are retubing the fuel economizer.

What happened to the old tubes?

Sulphuric acid ate holes in them.

Who put sulphuric acid in the fuel economizer?

Well, nobody meant to. But there was too much sulphur in the coal and when the coal burned some of the sulphur was turned to sulphuric acid.

Why did they purchase the high sulphur coal?

It figured out cheaper on the cents-per-million-BTU basis.

But was it really cheaper by the time they put the new tubes in?

No, it wasn't! And this instance shows that BTU cost is not the only factor to be considered in buying fuel. It's a matter of matching fuel to use and to equipment, and that requires close cooperation between the plant engineer and the purchasing agent.

P.S.

There's a lot more to buying coal than the cost per ton. For facts and figures to solve your particular fuel requirements, write to: R. C. Riedinger, General Coal Traffic Manager, Chesapeake & Ohio Railway Company, Terminal Tower, Cleveland 1, Ohio.

Chesapeake and Ohio Railway

WORLD'S LARGEST CARRIER OF BITUMINOUS COAL

Our Municipal Notebook

Mayors' Conference Award Goes to David L. Lawrence

THE United States Conference of Mayors' Award for Distinguished Public Service was presented to David L. Lawrence, Mayor of Pittsburgh, by his fellow mayors at their recent 1955 annual conference in New York City. Mayor Lawrence was honored chiefly for being the "crystallizing force" behind the rebuilding and redevelopment of Pittsburgh.

During the closing sessions of the meeting, John B. Hynes, Mayor of Boston, and Robert F. Wagner, Mayor of New York, were elected president and vice-president, respectively, of the Conference of Mayors. Elmer E. Robinson, Mayor of San Francisco, was the retiring President.

Senate Act Calls for 135,000 Public Housing Units Per Year

PUBLIC HOUSING got a big boost on June 7 when the Senate passed its version of the Housing Act of 1955—a version that provides for the construction of 135,000 units of low-rent public housing per year. Prior to passage of the new Act, the Senate rejected the Eisenhower Administration's proposal that only 35,000 public housing units be built during the coming fiscal year. In adopting the higher number, the Senate has returned to the figure originally contained in the Housing Act of 1949 passed under the leadership of the late Senator Robert A. Taft.

The new Act wipes out all of the legislative limitations that have been passed in recent years to hamstring the housing program developed in the 1949 Act. In addition to eliminating the 35,000 unit per year limitation, the Senate's action repeals the requirement that a local "workable program" must be approved by the HHFA Administrator before a municipality's public housing program can go forward. The Act also repeals the so-called Gwinn amendment relating to subversives in public housing.

A special provision of the Act favors aged persons by giving second preference in the occupancy of public housing units to single persons 65 years old or more and to married couples where one partner is at least 65 years old. In addition, 10,000 units per year were authorized for new projects designed specially for old people.

Larger funds for urban renewal, and redevelopment are also provided in the Act. Although no one yet knows what the House of Representatives' version of the Act will be, public housing enthusiasts all over the country were heartened by the Senate's surprisingly firm passage of an Act that gives promise for a revitalized housing program.

Do Lumber Yards Get Enough Special Zoning Treatment?

LUMBER YARDS are modern-day "conflagration breeders" in many communities because of shortsighted local development policies, according to W. G. Schultz of the Lumbermans Mutual Insurance Co., of Mansfield, Ohio.

In a recent speech before the 59th annual meeting of the National Fire Protection Association, Mr. Schultz described how fires originating in lumber yards have spread to adjacent homes and buildings and resulted in the destruction of entire communities. He noted that many such lumber yards had originally been located on the outskirts of the towns involved but were later allowed to be entirely hemmed-in by dwellings and other buildings as a result of shortsighted expansion policies in the various municipalities.

Mr. Schultz listed the basic fire protection measures that lumber dealers should observe, but he noted that the responsibility for the real solution to the problem of lumber yards and their surrounding land uses lay jointly with the dealers and the city officials.

The Editors of THE AMERICAN CITY believe that Mr. Schultz has performed an excellent service in pointing to a problem that has been neglected in many communities. The problem is basically one involving the relationship between lumber yards and surrounding land uses. It looks to us as though planners and zoners should give special attention to this matter when they prepare or revise local zoning ordinances.

REPRESENTATIVE MUNICIPAL BOND ISSUES

June 1 to June 18, 1955

Date of Sale			*Purpose*	*Average Maturity (Years)*	*Net Interest Cost Per Cent*
6/1/55	Guilderland, N. Y. ..	60,000	Fire House Construction and Equipment	8 5/6	2.68
6/2/55	Au Gres, Mich.	22,500	Motor Vehicle Highway Fund	7 5/6	2.74
6/2/55	Carmel, Ind.	116,000	Water Works Revenue	15	3.2008
6/6/55	Akron, Ohio 4,000,000		Sewage Disposal Plant Improvement	10¾	2.3232
6/7/55	Bernalillo Co., N. M...1,200,000		School Building	5½	2.4725
6/7/55	Dearborn, Mich.	13,500	Special Assessment	4 ⅝	2.46308
		14,000		5⅛	
		18,500		5 2/3	
		23,000		5 2/3	
6/9/55	Islip, N. Y.	345,000	Public Improvement	2½	1.73
6/10/55	Berea, Ohio	120,000	Street Improvement	5½	2.296
6/13/55	Indianapolis, Ind. ..1,000,000		Bridge Grade Separation Thorofare & Building	10½	1.9278
6/14/55	Binghamton, N. Y. ..1,300,000		Highway	10½	1.83
		760,000	Incinerator	5	
6/15/55	Brunswick, Maine ..	300,000	Sewer District	13½	2.28

Compiled from *The Bond Buyer*

National Municipal League Has Big Plans for Seattle Conference

WITH over 20 priority governmental problems scheduled for discussion, the National Municipal League will open its 61st Annual National Conference on Government in Seattle, Wash., on July 24.

The four-day Conference will be held in the Student Union at the University of Washington. Over 2,000 civic leaders, public officials, political scientists, and others concerned with local and state government are expected to attend to discuss broad lines of attack on such current problems as the need for local home rule, local elections systems, strengthening the local property tax, the citizen's role in local planning, modernizing state and local courts, strengthening state management, the businessman's role in civic affairs, and many others.

Housing as a Field for Foundation Investments

An editorial from the May 1955 *Housing News of the Pittsburgh Housing Association*:

"It is good news indeed that the Buhl Foundation has decided to build a $350,000 addition to Chatham Village in Mt. Washington, not only because the new 19-family elevator-type structure will further enhance the already solid reputation of the attractive nationally known housing development, but because this action demonstrates anew the potential of the housing field as a promising but virtually neglected area of investment for foundation funds in our community.

"Charles F. Lewis, Director of the Foundation, in commenting on the new proposed addition, stated that 'The Construction of this project, relatively small though it may be, may be accepted as evidence that the Buhl Foundation is pleased by the success of this fine community that it pioneered and that it has faith in it and faith in Pittsburgh.'

"It seems to us that the guiding principle followed by many foundations to put their funds to constructive social use without undue risk and with reasonable return in income might find ready application in the unserved market for privately-financed housing among low-income groups where the need is great and financing from the usual sources is not readily available."

Community Messages on Outside of Envelopes

INCREASING use is being made of the message-carrying potential of the outside of envelopes in which cities mail letters, bills, and general announcements, the National Institute of Municipal Clerks reports.

In most cases, the envelope messages are carried on a slug which can be inserted in postage meters to print the message along with the postage, but a few cities have the messages inscribed.

According to an informal survey made by the Institute, some of the messages are aimed mostly at out-of-city recipients. But many are intended for local viewing, since the bulk of a city's mail goes to addresses within city limits.

Community slogans fall into the category evidently intended for non-resident appeal. Among these are: "Come to Columbus and Discover America," on Columbus, Ohio, envelopes, and "Where Progress Lights the Skies," for Newcastle, Wyo. Some envelope messages call attention to points of local pride—like Milwaukee's "The Home of the Braves." Or they may take note of yearly events—like the "Annual Rose Festival" printed on Little Rock, Ark., envelopes. Or they may mention major anniversaries—like the "100 Years of Progress" with which Elizabeth, N. J., marked the centennial of its incorporation March 27, 1855.

Among cities that feature messages intended for their own citizens' reading are: Los Angeles, Calif. ("Civil Service Jobs Open—Apply Room 5, Los Angeles City Hall"); Baltimore, Md. ("CD—The Time for Action Is Now"); and Hartford, Conn. ("You Separate—We Incinerate").

Fort Smith, Ark., carries sermonettes like "City Business Is Your Business—Have You Seen About It?"

Evanston, Ill., is one of several cities to vary messages from time to time—on occasion direct, as in "Pay Your Taxes NOW," and other times encouraging or urging citizen cooperation, as in "Be A Good Citizen—Clean Your Walk" or "Please—No Grass Clippings in the Gutters."

New How-To-Do-It Municipal Public Relations Booklet

A JUST-PUBLISHED bulletin of the Municipal Technical Advisory Service (Tennessee) explains the need for a municipal public relations program "for any and all sizes and types of municipal government," defines MPR, presents an ordinance to put a public relations program into operation, and then shows how MPR could work in "small and medium-sized cities" under the ordinance.

The bulletin is authored by Mrs. Pan Dodd Wheeler, advisor on information for the Tennessee MTAS and editor of THE AMERICAN CITY's section, "The City Tells Its Story." Municipal officials—managers, clerks, PRO's—throughout the country have contributed to the study and the ordinance is a "synthesis of several now in operation in cities outside the State of Tennessee . . . and of a Model MPR Ordinance drawn by a class in municipal public relations at the New School for Social Research of New York."

Public Relations Ordinance

Title of the publication, "A Municipal Public Relations Program That Works For Small and Medium-sized Cities," indicates that it is designed especially for cities in the 10,000 (and under) to 50,000 population class. The ordinance, Mrs. Wheeler says, gives "legal status" to city policy that "recognizes the importance of relationships between the government and its people." The ordinance creates "A Bureau, Department or Office of Research & Information, Public Relations, or Information & Service"—a choice of names to suit almost any city council! The publication lists the duties of the MPR office, indicates how it could handle actual PR program problems (those on which Mrs. Wheeler has been called to help in smaller Tennessee cities), and discusses various methods of staffing such an office—from volunteer to full-time salaried personnel.

Copies have been prepared and distributed by the Government Public Relations Association to its members. Spiral-bound copies are available for $1 (write GPRA, Box 8260, Knoxville, Tenn.).

See also "How to Set Up a Local MPR Program" on page 181 of this issue of THE AMERICAN CITY.

completely new design!

PYLE SIRENS

MODEL "7"

MORE POWERFUL

LESS CURRENT

LIGHTER WEIGHT

SMALLER SIZE

SINCE 1897

FOR BULLETIN No. 622 . . . SEND THIS COUPON!

THE PYLE-NATIONAL COMPANY

WHERE QUALITY IS TRADITIONAL

1361 North Kostner Avenue, Chicago 51, Illinois

THE PYLE-NATIONAL COMPANY
1361 North Kostner Avenue, Chicago 51, Illinois
Please send me full details on Pyle, Model "7" Siren.

NAME_____

TITLE_____

DEPARTMENT_____

ADDRESS_____

CITY_____ ZONE____ STATE_____

TRAFFIC SEPARATOR LIGHTS • SUBWAY AND PIT LIGHTS • WARNING LIGHTS • FLOODLIGHTS • VAPORTIGHT FIXTURES

"For the Greater Good of All" — The National Chamber's 1955 Program

PROCLAIMING the fact that "more and more, business is assuming responsibility for building a better economic and social order," the Chamber of Commerce of the United States has issued an exceedingly attractive and well-written brochure, "For the Greater Good of All."

In an introductory statement Arch N. Booth, Executive Vice President, summarizes the seven basic aims of the National Chamber's Program as follows:

1. Improve Living Standards — Expand production, develop new markets, provide more jobs, keep the economy dynamic.

2. National Security—Encourage an enlightened foreign policy, expand world trade, and strengthen all phases of national security.

3. Community Development—Build better cities and communities.

4. Economy and Taxes—Promote government economy, and devise a better tax system.

5. Labor Relations—Create greater harmony between labor and management, America's productive team.

6. Education—Raise the educational levels of youth and adults, also build a better public understanding of the American economic system.

7. Organization Work—Make increasingly more effective America's business organizations which are federated and working together for good citizenship, good government and good business.

"Finally," Mr. Booth points out, "what is needed—to make the program come to life and to put it into effect—is *action*, positive, intelligent, persistent action."

Increasing Enforcement of Housing Codes

AN OPTIMISTIC REPORT on local enforcement of housing codes comes from Walter S. Dayton, Bayside, N. Y., chairman of the Build America Better Council of the National Association of Real Estate Boards, in a statement issued in Chicago following the annual May meeting of the Council.

"Since 1952 and through May 16, 1955," said Mr. Dayton, "the Build America Better Council has received reports from local real estate boards indicating that a total of 237 cities were firmly enforcing their housing health, safety, and sanitation codes. This figure compares with 188 so engaged in May 1954, and 208 listed in January 1955.

"Never before in our history have so many municipalities been concurrently unleashing the full impact of firm housing law enforcement on deficient dwellings."

Editorial Note: Municipalities whose housing codes need modernizing—and that includes most cities — can obtain from THE AMERICAN CITY without charge a reprint of the article entitled "Requirements of a Good Housing Ordinance," by Ralph J. Johnson, published in this magazine last month.

Foundation to Finance $250,000 Recreation Center for the Elderly

The architect's sketch of the proposed center for the elderly.

THE Department of Parks of the City of New York announced on May 30, that the trustees of the Florina Lasker Foundation have made available a gift of $250,000 to make possible the construction in Central Park of an indoor and outdoor recreation center.

The Center will be restricted to use by older persons. To be called the Florina Lasker Recreation Center, it will be located in a rocky wooded area, known for many years as "The Ramble." Its shrubs and fine old trees, picturesque topography, and variety of bird life have made its network of meandering paths so appealing to older people.

The funds to be provided by the Foundation will construct a recreation building, an outdoor paved terrace and recreation area—including horseshoes, croquet, shuffleboard courts, and so forth—and will equip and furnish all these facilities. Other new facilities in the Ramble will include a parking area; a service yard; lighting and fencing; game tables; umbrella tables and chairs, etc.

The recreation building will be well-equipped and attractively furnished. It will contain a food bar, toilet facilities, storage space and boiler room, a television room, a radio room, a music room with a piano, a record player, and a wide variety of records, a game room, and social hall. It will be staffed with Park Department personnel trained in recreational leadership and with special insight into the needs of the older generation.

The late Florina Lasker, a graduate of the New York School of Social Work, was born in Galveston, Texas. Over a period of three decades, Miss Lasker had been actively associated with many social and civic movements in New York City in the field of civil liberties, labor and racial relations.

The Florina Lasker Foundation's public-spirited gift will provide a splendid addition to the growing number of fine contributions to the recreational facilities of Central Park by private donors in recent years.* The Wollman Ice Skating Rink, the Loeb Boat House, the Friedsam Carousel, the Kerbs Model Yacht Boat House, and the Chess and Checker Building are other examples of private generosity meeting special needs which the city cannot ordinarily undertake to supply.

* See "Gifts to Central Park," by Robert Moses, in the April 1954 issue of THE AMERICAN CITY, pp. 94 and 95.

ADAMS!

he knows how to take the whether out of weather!

Weather proof! — How important it is to be able to say: my factory . . . farm . . . ranch . . . city . . . is weather proof. Layne knows how to take the *whether* out of weather. Layne has removed the fear of drought and resulting shortage of water supply for thousands of municipalities — large and small — for leading industries — for farmers and ranchers all over the world.

To take the *whether* out of weather — "ask the man from Layne."

Layne Associate Companies Throughout the World

LAYNE & BOWLER, INC.
General Offices
Memphis 8, Tennessee

water wells • vertical turbine pumps • water treatment

Layne

ADAMS advantages pay off for

ADAMS offers 4 models, ranging from 75 hp. to 140 hp., all featuring these advantages:

- New Constant-Mesh Transmission
- 8 Forward Speeds
- 3 Creeper Speeds (optional)
- 4 Reverse Speeds
- Dual Braking System
- Rubber-Mounted Engine
- Foot Accelerator

The Street Commissioner of Virginia, Minn., has this to say of the city's Adams Motor Grader: "We are well pleased with our machine. It has plenty of power and is very easy to operate. We use it for all types of construction and maintenance work."

More and more cities and towns across the nation are finding Adams Motor Graders the most useful machines they can own . . . ideal for building, rebuilding and maintaining streets and alleys —backfilling over sewers, water mains, gas pipes—leveling parking areas, playgrounds—removing snow.

Let your nearby dealer demonstrate how Adams Motor Graders can speed operations and save time and money for you.

LeTourneau-WESTINGHOUSE Company, Peoria, Illinois

A Subsidiary of Westinghouse Air Brake Company

Make your next motor grader an **ADAMS**

Street Construction & Maintenance

A Hurry-Up Way to Repair Sidewalks

LEAVE it to Levitt and Sons, Inc., precedent-breaking builders of attractive homes, to develop a fast way of repairing sidewalks and curbs in Levittown, Pa.

General Construction Superintendent E. V. Ludlow realized that the work was scattered over a wide area and that the task of moving the conventional equipment and materials from one site to another would be costly and slow. So he selected portable concrete gunning equipment consisting of two principal units that can be hitched to the rear of an air compressor and conveniently towed from place to place on a truck.

One piece, the Bondactor, was mounted on the wheeled chassis of the other, the Mix Elvator. Both are normally mounted on their own wheeled chassis but, when used in combination, only the Mix Elvator chassis is used to provide a compact mobile unit. Both are products of Air Placement Equipment Company, of Kansas City, Mo.

Using this equipment, the workmen shoot the cement-sand mortar onto the sidewalk or curb needing repairs. One finisher then smooths the mortar to finish the job. The high-speed operation is shown above.

A Concrete Salvage Plant

WHAT does a city do with old concrete? Officials may bluntly tell whoever has such material on his hands to cart it to the dump. But New Orleans' Director of Streets, Albert B. Wyler, has a sharp and thrifty eye to new ways and materials to stabilize the marshy soil of his city. He has the concrete passed through a crusher so that it can be used as road-building material. The installation is designed to good engineering standards. Trucks deliver the concrete to a Universal crusher able to receive 30 tons per hour. A conveyor belt then transfers the crushed concrete to a 150-ton hopper, erected by the Bedell Structural Steel Company. This hopper has two discharge chutes: one will fill trucks directly; the other will discharge the crushed concrete to a stockpile.

(Right) The storage hopper. Note its two chutes. (Left) Director of Streets Wyler makes a final inspection of his new concrete salvage plant.

The crusher installation has ample concrete platforms to allow the trucks to enter and leave and avoid unnecessary muddy roadways. The plant is operated by Foreman Joe Giodano.

Working Beauty at Cincinnati

The striking modern design and operational capabilities of this Hortonspheroidal® elevated water tank, provide a real working beauty for the Western Hills section of Cincinnati, Ohio. The 2,500,000-gal. elevated tank not only solved water distribution problems caused by peak load demands, but also blends attractively with the surrounding landscape.

To learn how a Horton® elevated tank can improve your municipal water service and enhance your city's appearance, write our nearest office for complete information.

CBI

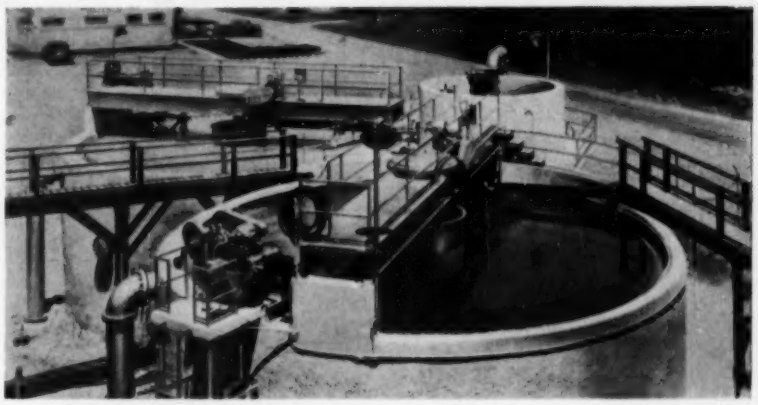
Chicago Bridge & Iron Company

Atlanta • Birmingham • Boston • Chicago • Cleveland • Detroit • Houston
Los Angeles • New York • Philadelphia • Pittsburgh • Salt Lake City
San Francisco • Seattle • Tulsa
Plants in BIRMINGHAM, CHICAGO, SALT LAKE CITY and GREENVILLE, PA.

Water Supply and Treatment

Water Treatment In Vacationland

The North Miami Beach water plant was enlarged twice in three years and may have to be again if the present rapid rate of growth continues



THE people who come to North Miami Beach, Fla., seeking rest bring none for the water-treatment plant. Within the last three years, the city has had to expand it twice. In 1951, a 30½-foot Dorrco Hydro-Treator was installed in one of the existing settling tanks to boost its capacity. In 1953, a second similar unit went into an adjoining tank. Present capacity is 4 mgd with peaks going as high as 5 mgd. The plant also serves Sunny Isles, Golden Beach, and a number of large motels that are located nearby. In 1945, North Miami Beach had 2,000 persons living in approximately 500 residences. In 1948, the population had grown to 3,000 and the municipality called on the firm of Reynolds, Smith and Hills, consulting engineers, of Jacksonville, to design and build a water system. When completed, the system had 400 customers. But, by February 1951 the number of services had jumped to more than 1,000; and a year later, to 2,290. By July 1953, the number of services rose to nearly 6,100; the number is now approaching 9,000.

A Better Breakable Hydrant

(Left) The hydrant and truck look headed for trouble. However, fortunately, this collision is only a planned test.

ACCIDENTS often take their toll of innocent bystanders. And when the accident involves a car or truck, the odds are good that the bystander will be one of the city's fire hydrants.

To protect these hydrants as much as possible, we have chosen the break-type, designed to give way at the flange when hit and yet leave the hydrant itself uninjured. The ones we formerly used had cut bolts to provide this weakened point. But they did not prove too satisfactory.

Consequently, we have developed some improvements that allow the hydrants to be still more easily broken at this point and yet leave their over-all strength unimpaired. These were incorporated into a test hydrant made by the American Cast Iron Company, of St. Louis, and sent to us for experiment.

We set one of these hydrants on a 10-inch main subject to approximately 50 pounds of pressure. We then hit it with a large truck traveling at about 5 miles per hour. The hydrant flange broke without injury to the top or bottom section and stem. We were able to put it back into service in less than 30 minutes at a low repair cost for just a few spare castings.

Test result: breakage is anticipated; repairs inexpensive; hydrant back in service in 30 minutes; no spouting fountain.

If the hydrant continues to work as satisfactorily as it did in our test, it will save the city a large sum of money in repair and maintenance costs.

S. T. ANDERSON, *General Superintendent, Dept., of Water, Light, and Power Dept., Springfield, Ill.*

New AUTOFLOW

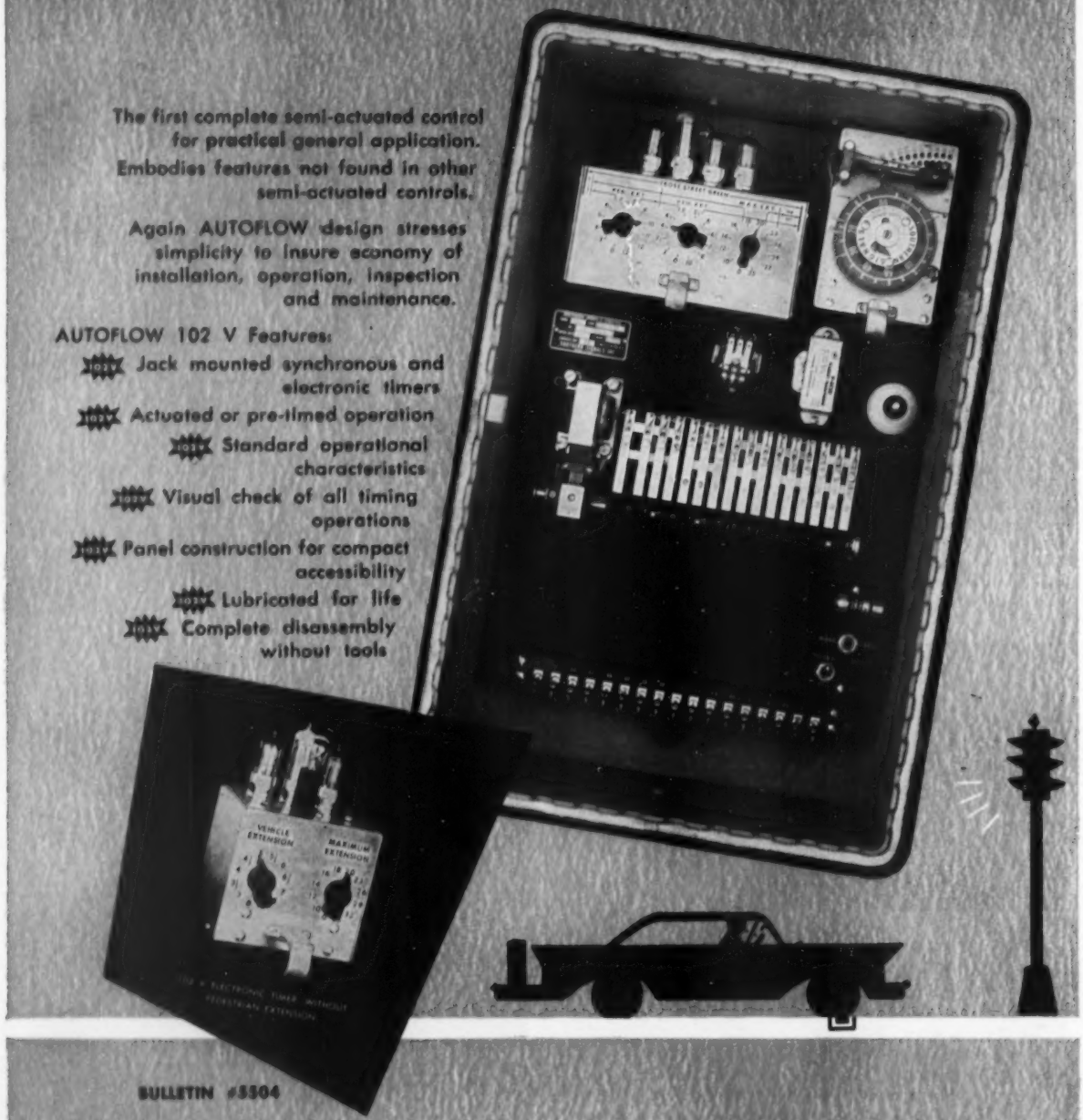
102V Semi-Actuated Control

The first complete semi-actuated control for practical general application.
Embodies features not found in other semi-actuated controls.

Again AUTOFLOW design stresses simplicity to insure economy of installation, operation, inspection and maintenance.

AUTOFLOW 102 V Features:

- Jack mounted synchronous and electronic timers
- Actuated or pre-timed operation
- Standard operational characteristics
- Visual check of all timing operations
- Panel construction for compact accessibility
- Lubricated for life
- Complete disassembly without tools



BULLETIN #5504

SOUTHERN Signals INC.

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Some Current Municipal Trends

Crisis in Open Space

AMID predictions that automation will give Americans more time to spend on recreation activities in the future, participants in the recent National Citizens' Conference on Parks and Open Spaces for the American People viewed with alarm the approaching crisis in park needs in the nation's urban areas. The conference, which was conducted from May 22-25 by the American Planning and Civic Association, drew city planners and park personnel to Washington from all parts of the nation.

The situation described by the variety of speakers at the conference was black. Here in brief are the main points:

1. At present open space dedicated for park and recreation use is seriously inadequate to serve existing populations in American cities.

2. Inadequate as the existing space is, it is actually getting smaller in many cities where expressways, parking lots, public buildings, and other uses are being allowed to preempt the open areas.

3. While many park and city planners have ambitious plans for providing adequate open areas to make up the deficits, few believe with conviction that their master plan recommendations will become realities.

4. One of the reasons for doubting that the recommendations would be carried out was the fact that reservoirs of undeveloped land on the outskirts of urban areas that have traditionally been considered the source of tomorrow's outlying park systems are being gobbled up by the frenzied activity of surburban developers.

5. Finally, against this background of existing inadequacy came the prediction of enormously greater inadequacies in the future resulting from the nation's rapid population growth and an even more fabulous growth in leisure time as automation takes hold in business and industry.

What to Do About It?

It was obvious to most speakers that such city planning techniques as zoning and subdivision control could not be depended on to help much in the fight. A poll of 26 cities over the country revealed that pitifully small amounts of open space had been yielded during the past five years through subdivision regulation requirements. This was the sort of picture to expect in cities where park dedications could be enforced. However, some cities didn't even have the power to require dedications.

Way up on the list of things that have to be done to get the needed open space is to develop better standards for estimating recreation requirements. The old standards, the planners admitted, are not scientific enough. With a rapidly changing pattern of urban living conditions—more people living in suburban areas with their own back yard play areas and a pattern of greater leisure time—the general consensus was that a basic research project on recreation and open space standards was urgently needed. Planners from the Detroit Regional Planning Commission staff reported that they hope to make a stab at developing such better standards for metropolitan areas.

Three speakers independently suggested that the solution to getting big open areas in and around dense urban areas lay in the direction of big government agencies—metropolitan, state or federal agencies. In this regard, T. Ledyard Blakeman, Detroit Regional Planning Commission director, said that the ineffective action of the counties around Detroit in providing for park needs "has shoved the county park demand onto the shoulders of the (Detroit area's) Huron-Clinton Metropolitan Park Authority." Lawyer-planner McKim Norton of New York's Regional Plan Association said, "To carry out metropolitan land reservation plans, will require county, state, and even federal action. . . . Few municipalities in metropolitan fringe areas have either the understanding, the will, or the financial ability to act before great opportunities are lost. The prime mover in acquiring metropolitan reservations must, I believe, be the states themselves or metropolitan park districts created by the states."

The overwhelming blanket of urbanization spreading out from overcrowded cities threatens to create a crisis in open space unless efforts to acquire open land are taken soon.

Need for a Conference

Finally Joseph Prendergast, executive director of the National Recreation Association, suggested that President Eisenhower call a series of national conferences on the park crisis following the tradition of President Theodore Roosevelt's 1908 Conservation Conference, and President Coolidge's 1924 Conference on Outdoor Recreation Said Mr. Prendergast, "Out of such conferences should come the preparation, adoption, and implementation of a nationwide recreation policy, plan, program, and administrative framework through which the American people can provide for themselves adequate opportunities for the best and most satisfying leisure time. . . . A conference called by President Eisenhower in the Spring of 1956 would do much to alert the nation to its need for parks and open space."

WATER YOUR PLANTS AND WATCH THEM GROW!

Today, water is as basic to industrial development as it always has been to agriculture. Since thriving industry is essential to the growth and prosperity of the community, a water supply system capable of sustaining a high rate of industrial expansion is a prime concern of the community.

Such a system requires that the water supply and distribution pipelines be as efficient and indestructible as is economically possible. In pipelines 16 inches in diameter and larger, this can best be realized with LOCK JOINT CONCRETE PRESSURE PIPE.

This pipe retains its initial high carrying capacity throughout an exceptionally long life, is low in initial cost, and requires very little, if any, maintenance. More important still, its record for unfailing, trouble-free service is unexcelled.

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To obtain any of the following catalogs write directly to the manufacturers. If you prefer, you may circle the identifying numbers on this coupon, tear off, and mail to THE AMERICAN CITY, *470 Fourth Avenue, New York 16, New York, or use the Post Card on the colored insert following page 34.*

327	333	339	345	351	357	363	369	375	381	388
328	334	340	346	352	358	364	370	376	382	389
329	335	341	347	353	359	365	371	377	383	390
330	336	342	348	354	360	366	372	378	384	391
331	337	343	349	355	361	367	373	379	385	392
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Name ..... **Position** .....

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Brush Disposal Made Fast and Easy

327 By chipping brush the Fitchburg Chipper way, your city can reduce both its manpower and trucking costs for fast, economical brush disposal. One man operating this efficient unit can dispose of brush, banana stalks and various other debris likely to cause trouble with incinerator equipment. Complete specifications and operating data are available from the FITCHBURG ENGINEERING CORP., DEPT. AC-75, FITCHBURG, MASS.

Small Chlorine Feeder, Gives Giant Dependability

328 This "Heavy-Duty Midget Chlor-O-Feeder" dependably chlorinates camp water supplies, swimming pool water and disinfects sewage. The unit is fully described and illustrated in *Bulletin 1201-2*, available from PROPORTIONEERS, INC., 358 HARRIS AVE., PROVIDENCE 1, R. I.

Stops Mildew Rotting

329 When "Superseal" is applied to fire hose jackets, the jackets resist moisture absorption and mildew attack 10 times more effectively than by other methods, reports the B. F. GOODRICH CO., INDUSTRIAL PRODUCTS DIV., AKRON, OHIO. "Superseal," an improved synthetic fiber filler cord, and Goodrich municipal fire hose, are described in a new, illustrated folder available on request.

Economical Well Screens

330 The well screens offered by this company provide more open space for greater water intake and increased efficiency. How Johnson Welded Well Screens assure maximum well development, is explained in literature from EDWARD E. JOHNSON, INC., 2304 LONG AVE., ST. PAUL 14, MINN.

Fibre Pipe for Sewer and Septic Systems

331 Latest information on the many applications of Perma-Line bituminized fibre pipe for drainage, sewer service lines and septic systems is contained in *Bulletin No. 54078*. This long-wearing, economical pipe is composed of 25% fibre and 75% pitch. Easy to install, it is available in a variety of sizes to suit any installation. Write the LINE MATERIAL CO., MILWAUKEE 1, WIS.

Tractor Loader Offers Bigger Loads

332 Two important features combine to give your city bonus yardage on a Michigan tractor-loader. The Clark-built power train with torque converter and power-shift transmission, gives you more cycles per hour, and new Michigan bucket action puts more material in each bucket load. Details on the company's low-cost lease plan are available from the CONSTRUCTION MACHINERY DIV., CLARK EQUIPMENT CO., 416 SECOND ST., BENTON HARBOR, MICH.

Pump Powered by Truck Engine

333 Attached to any municipal pickup truck, a Watson pump may be used for fighting grass and spot fires, spraying trees and parkways, and pumping oil, gasoline, chemicals and water. The pump is powered by Watson rear power source and driven by the truck engine. It is available from the H. S. WATSON CO., DEPT. AC-7, 1316 67th ST., EMERYVILLE, CALIF.

"Package" Sewage, Pumping Stations

334 You can extend sewer lines without stretching your municipal budget by installing Smith & Loveless underground pumping stations. These are designed as self-contained units completely automatic. They can be placed underground with perfect safety. They are economical and built to give long, trouble free life. An informative 46-page *Engineering Data Manual* will be furnished by SMITH & LOVELESS, INC., P. O. BOX 8172 DEPT. A, KANSAS CITY, MO.

Paints for Steel and Concrete Swimming Pools

335 The Ramuc Type S paint system for steel swimming pools, and the Ramuc Type A system for concrete pools, are advanced by the INERTOL CO., INC., 485 FRELINGHUYSEN AVE., NEWARK 5, N. J. Ramuc swimming pool enamel is especially formulated so that water can't soak into it and weaken it. It keeps pools looking clean and attractive, protects pool surfaces, and cuts expenses. Details on request.

Radar Detector to Control Traffic

336 Easily installed on bridges and in other areas where regular detectors are difficult to place, the new Electro-Matic Radar Vehicle Detector, Model RD-1, provides an accurate, dependable means of traffic control. Situated above the street, the magic eye of radar operates continuously, unaffected by weather and climate. It is described in *Bulletin D-154*. Write the AUTOMATIC SIGNAL DIVISION, EASTERN INDUSTRIES, INC., NORWALK, CONN.

A Super Handy Man for the Small City

337 Smaller cities can use the Schramm Pneumatractor as a tractor, an air compressor, a backhoe and a loader. The versatile machine loads sand in winter, excavates for sewer and water main repairs, breaks up frozen ground and does dozens of other jobs. It is described in *Catalog* 5540 from SCHRAMM, INC., WEST CHESTER, PA.

Faster Curb Laying Without Forms

338 Three men operating a Stephen-Canfield curb laying machine on straight runs, can lay up to 1,800 feet of asphaltic or Portland cement concrete curb a day, efficiently and economically. The automatic unit will lay curbs on the subgrade, on the base or on the finished pavement, without forms. It is available from E. L. HARDIN ASSOCIATES, INC., SALISBURY, N. C.

Vertical Turbine Pumps

339 The vertical design of these turbine pumps will save up to 60% of the floor space in your municipal water or sewage plant. These pumps are easily installed without costly priming devices. They are inexpensive to operate, and offer reduced maintenance costs. Write the JOHNSTON PUMP CO., BIN "K", PASADENA 15, CALIF.

Municipal Uniforms

340 For suggestions, advice and prices on uniforms for police, fire, sanitation and other city forces, write the BEST UNIFORM CO., 305 E. FORDHAM RD., NEW YORK 58, N. Y.

(Please turn to page 30 for more Bulletins)

KENNEDY A.W.W.A. GATE VALVES

for a wide range of water works requirements

KENNEDY Fig. 56, A.W.W.A. Standard Double-Disc Gate Valve

Every KENNEDY A. W. W. A. valve is JOB-FITTED . . . ruggedly constructed, especially designed and engineered for the job it has to do. Conforming to A. W. W. A. standards in every detail, these KENNEDY valves give you many extra-value features, too. The iron itself, for example, it 50% stronger than ordinary cast iron to keep KENNEDY valves doing their job year in and year out.

KENNEDY manufactures a complete line of water works valves. Sizes range from 2" to 60" giants. Types include non-rising stem and outside-screw-and-yoke valves. And for your special needs there's a wide variety of gearing arrangements, controls, accessories and end connections available. Just tell KENNEDY your needs and they'll be filled.

Specify KENNEDY valves and fire hydrants for your community and you can be sure of dependable, trouble-free service with "built-in" longer valve life. That means greater economy and protection for decades ahead.

• KENNEDY VALVES ARE JOB RATED

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THE KENNEDY VALVE MFG. CO. ELMIRA, NEW YORK Est. 1877

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Write directly to the manufacturers or use coupon on page 29

Cleans Sewers Quickly

341 With the new O'Brien Sewerking, sewer-cleaning crews can use either a flexible cable or sectional steel rods. The unit utilizes an O-B Power Transmission for fast, effective operation. This new power unit has variable speeds, is reversible and provides the proper speed for all cleaning operations. Write the O'BRIEN MFG. CO., DEPT. AC-555, 5662 NORTHWEST HIGHWAY, CHICAGO 30, ILL.

Low-Cost Water Treatment for the Small Community

342 The heart of this new packaged water treatment plant for small communities is a Graver Reactivator, a high-rate, self-contained softener and clarifier. The plant integrates all equipment from inlet to outlet. It includes a clear well, chlorinator, wet or dry chemical feeders, gravity or pressure filters, level and flow controls and instruments, and inter-connecting piping. For *Technical Reprint T-126*, write the GRAVER WATER CONDITIONING CO., 216 W. 14TH ST., NEW YORK 11, N. Y.

Watermains Fittings

343 Standard bell-and-spigot watermain fittings—2 through 36 inches, and short body and mechanical joint watermain fittings—4 through 12 inches, may be obtained from the TRINITY VALLEY IRON AND STEEL CO., P. O. BOX 664, FORT WORTH, TEXAS. These fittings are AWWA approved, and are built for long life and dependability.

Diesel Engines

344 MM diesel engines are developed with "energy-cells" to make them last longer, do more and go farther with less down-time and maintenance. They feature removable cylinder blocks and heads, facilitating maintenance. Efficient operation is obtained by uniform cylinder expansion. Write MINNEAPOLIS-MOLINE, MINNEAPOLIS 1, MINN.

New Spin-Torque Chuck Handles Many Pipe Sizes

345 The Toledo spin-torque chuck clamps rod or bolt stock from ¼-inch up and pipe or conduit ⅛- to 2 inches. Its special rocking-wedge jaws tighten as torque is applied. A spin of the man-sized hand wheel closes the jaws quickly and smoothly, without hammering. Get full details from the TOLEDO PIPE THREADING MACHINE CO., 1445 SUMMIT ST., TOLEDO 4, OHIO.

Solves All Your Incinerator Problems

346 The AMERICAN INCINERATOR CORP., 5710 NEVADA, E., DETROIT, 34, MICH., will assist your municipality in planning and designing incineration facilities of any size and for any application. A comprehensive new bulletin, *Incinerators*, gives full facts on municipal incineration, waste fuels, combination garbage and refuse units and other useful data.

(See page 32 for more Bulletins)

THE SUN'S HEAT AND GIANT REFLECTORS *may convert cosmic energy into power that will propel space ships to distant planets.*

100 years from now...

WE MAY "SIGHT SEE" ON MARS

A century from now, when undreamed-of marvels transform our way of life, civilization will still rely on one familiar public servant: the cast iron pipe laid today will continue to carry water and gas to the homes of the future.

Proof? 69 American cities and towns are still using cast iron water and gas mains over a century old. And today's modernized cast iron pipe . . . centrifugally cast and quality controlled . . . is even stronger, tougher, more serviceable.

U.S. Pipe is proud to be one of the leaders in a forward-looking industry whose service to the world is measured in centuries.

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U. S. PIPE AND FOUNDRY COMPANY, General Office: Birmingham, Alabama

A WHOLLY INTEGRATED PRODUCER FROM MINES AND BLAST FURNACES TO FINISHED PIPE.

ONAN Announces Two New Series of

POWER PACKED ELECTRIC PLANTS

MORE POWER, LESS WEIGHT, SMALLER SIZE, LOWER COST!

2,500-watt unit weighs only 154 pounds! Gives you more power per dollar than any other 4-cycle electric plant.

Higher output in a smaller, lighter package gives these new Onan units marked advantages for every type of service . . . portable, mobile, primary, or emergency standby.

Wherever you use *portable* electric plants, you can now put more cost-cutting electric light and power to work for you . . . at less cost. In *mobile* applications you can take along more power in less space . . . with less weight. In *primary* and *emergency* standby applications you get more power at less cost with all the Onan advantages of quick starting, long life and easy maintenance.

These new units are *completely Onan-built*, with Onan engines direct-connected to Onan generators in a single compact unit. The new, modern, *short-stroke*, single-cylinder, 4-cycle engines feature extra-large bearings and free-breathing intake and exhaust systems to give you thousands of hours of operation without major servicing. Generators are drip-proof and specially insulated for all-climate, all-season use.

Equipped with carrying frames or two-wheel rubber-tired dollies, Onan AJ and AK series electric plants can be taken anywhere . . . moved around easily on the job.

See your Onan distributor or write for new folder describing all 18 new models

POWERED BY MODERN SHORT-STROKE ENGINES

AK A.C. MODELS 500 and 750 watts, 115 or 230 volts.

AK D.C. MODELS (Battery chargers) 500 and 750 watts, 6, 12, 32 volts.

AJ A.C. MODELS 1,000 and 2,500 watts, 115 or 230 volts.

AJ D.C. MODEL (Battery Charger) 1500 watts, 32 volts

Onan ELECTRIC PLANTS

D. W. ONAN & SONS INC.

2529 University Ave. S.E., Minneapolis 14, Minnesota

Catalogs for You

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Salt Stabilization for Better Streets

347 Not only does salt do an excellent job of stabilizing your street and road bases, but it also provides the added advantages of less dust, practically no frost boiling, and minimum loss of expensive aggregate. Further, salt is economical, easy to use, and always available. For complete information on Morton salt stabilized road bases, write the MORTON SALT CO., 120 S. LaSALLE ST., CHICAGO 3, ILL.

For Concrete Tests

348 Municipal engineers and private testing laboratories are offered a new compression tester, Model QC-100-S, for testing concrete cylinders, 6 x 12 inches, and cast beams up to 8 x 8 x 48 inches. All accessories meet A.S.T.M. specifications and are quickly and easily interchanged. Additional accessory equipment is available for testing the compression and modulus of rupture of clay and concrete brick. Write FORNEY'S, INC., 209 ELM ST., NEW CASTLE, PA.

Cuts Asbestos-Cement Pipe Quickly

349 Designed for the fast, clean, cutting of any asbestos-cement pipe, the Spring-Load A-C pipe cutter adjusts in seconds, and is easily handled by one man. It cuts within one inch of the end of the pipe, providing tight joints without chipping, spoilage or loss. For complete information, write the SPRING LOAD MFG. CORP., 3610 FIRST AVE., SEATTLE 4, WASH.

Chairs for Modern Municipal Office

350 The HARTER CORP., STURGIS, MICH., will help your city select the right type of chair for every office worker. There are comfortable, attractive executive chairs for top officials, reception room and side chairs, and efficient secretarial chairs. A helpful new booklet, *Steel Chairs by Harter*, will be furnished on request.

Portable Pumps Fight Fires Quickly

351 Where water sources are remote or inaccessible, use these dependable dual fire-fighter pumps, portable units offered by THE GORMAN-RUPP CO., MANSFIELD, OHIO. Available in three models, each may be used to fight fire directly or as a booster unit for a truck pumper. Full details are contained in *Bulletin No. 9-FD-11 Rev.*

2-Stage Air Compressors

352 These 2-stage sliding-vane type air compressors for shop air, gas handling, drilling, and many other municipal applications deliver air at pressures from 60 to 126 pounds gauge, and are designed for low maintenance and constant efficiency. For full details, get *Bulletin* 16B8244 from the ALLIS-CHALMERS MFG. CO., MILWAUKEE 1, WIS.

(See page 34 for more Bulletins)

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TIRED . . . of expensive winding of your parking meters two or three times a week?

TIRED . . . of complicated mechanisms too difficult to maintain?

TIRED . . . of revenue loss due to frequent jams and inoperative equipment?

TIRED . . . of motorists complaining about "out of order" meters?

DUNCAN-MILLER "50"
The work horse of the industry—now in its 18th year of quality performance.

YOUR CITY can eliminate all parking control and maintenance dissatisfaction by installing quality Duncan-built meters. One out of every three cities now enjoy Big "3" low cost, reliable performance. Why not trade today?

DE LUXE DUNCAN-MILLER "60"
America's newest, most flexible curb and lot meter.

DUNCAN-AUTOMATIC
The world's only 100% automatic meter.

DUNCAN FINE-O-METER
TRADE MARK
Easy, convenient, proven system using violation ticket envelopes for collecting overtime parking fines.

DUNCAN PARKING METER CORP.
635 N. WOOD ST., CHICAGO 22, ILL. FACTORIES: HARRISON, ARK. & MONTREAL, P. Q., CANADA
Manufacturers of fully automatic and manual parking meters.

Why

thousands upon thousands of

RIDGID

400A Power Drives are now in use

Smart Performance—Efficient as it looks, 400A powers your hand pipe cutters, reamers, threaders with new ease, saving valuable time. New type wrenchless Speed Chuck operates fast, grips pipe, conduit, rod tight both forward and reverse. Quick-action centering device on rear shaft turns with pipe. Power? Plenty for pipe to 2", even to 12" with geared tools!

Really Durable—Like all RIDGID products, 400A is famous for durability. In every way, it's a lot more for your money.

See it, try it, buy it at your Supply House!

The Ridge Tool Company • Elyria, Ohio, U.S.A.

RIDGID

Work-Saver Pipe Tools

Catalogs for You

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Chemical Weed Control

353 The CHEMICAL INSECTICIDE CORP., 129 MONTAGUE ST., BROOKLYN 1, N. Y., will help your municipality find an effective solution to its weed and brush control problems. The company offers the Chem Weed Brush Killer (2, 4-D + 2, 4, S-T) for brush control, and Chem Sen 56 for soil sterilization and aquatic weed control.

One Tractor Powers Three Mowing Tools

354 You can reduce mowing costs in parks, cemeteries and municipal golf courses with an economical Gravely tractor. The unit supplies power for either a sickle mower, a rotary mower, or a reel mower. In winter, it may be used with snowblower, snowplow or power brush attachments. Complete information is contained in *Power Vs. Drudgery*, a new catalog from GRAVELY TRACTORS, INC., BOX 73, DUNBAR, W. VA.

Economical Unit Marks Clear, Even Traffic Lines

355 A small, economical striping machine, ideal for marking crosswalks, center-line, curbs and parking stalls is offered by WALD INDUSTRIES, INC., HUNTINGTON, PA. This "Junior" Reflecto-Liner applies reflective materials, premixed compounds, and plain traffic paints. Easy to operate, it features a high air gun ratio, 2:1; and a 50% reserve air capacity. Write for *Bulletin* 509.

Portable Leaf Burner

356 Park departments can use the portable Blitz-Burner to dispose of leaves and litter quickly and economically. The unit operates with a minimum of smoke and effectively resists heat, rust and corrosion. Its tubular handle is easily detached for use in lifting and removing the dome when the burner is hot. Write the MONTAMOWER DISTRIBUTING CO., KEELER BLDG., GRAND RAPIDS 2, MICH.

Traffic Signs, Posts, and Culvert Markers

357 ZUMAR INDUSTRIES is offering a number of traffic-control accessories constructed of Supergloss baked enamel metal. Among these are warning, regulatory and safety signs, delineators and reflectors, reflector units, culvert markers, sign posts and snow poles. For complete information, address the company at 1608 ESSEX ST., LOS ANGELES 21, CALIF.

Tandem Rollers

358 The advantages of low-cost rolling and high-speed operation have been combined in Buffalo-Springfield's new line of Standard tandem rollers. These units feature a torque-converter drive which automatically maintains constant roller speeds—regardless of grade —uphill or down. They are described in *Bulletin S*-68-555 from the BUFFALO-SPRINGFIELD ROLLER CO., SPRINGFIELD, OHIO.

(See page 36 for more Bulletins)

What's Your Problem?

If you need information on any type of municipal service or equipment, these reply cards will get action in a hurry.

To THE AMERICAN CITY's Catalog Supply Department:

Please send me further information on products described in "Purchasing News" section beginning on page 196 of your July 1955 issue, as circled below:

826	831	836	841	846	851
827	832	837	842	847	852
828	833	838	843	848	853
829	834	839	844	849	854
830	835	840	845	850	855

I would also like to receive manufacturers' booklets on.....

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Name: (Please Print).....

Title: .....

Address: .....

..... 7-55

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No Postage Stamp Necessary If Mailed in the United States

BUSINESS REPLY CARD
FIRST CLASS PERMIT No. 291, SEC. 34.9 P. L. & R., NEW YORK, N. Y.

THE AMERICAN CITY MAGAZINE
470 FOURTH AVENUE
NEW YORK 16, N. Y.

In A Jam?

You can obtain manufacturers' literature by making use of these convenient Business Reply Cards! A quick easy way to get full details on products and services mentioned or advertised in this issue.

To THE AMERICAN CITY's Catalog Supply Department:

Please send literature on items numbered as follows, starting on page 29 of your July 1955 issue:

327	334	341	348	355	362	369	376	383	389
328	335	342	349	356	363	370	377	384	390
329	336	343	350	357	364	371	378	385	391
330	337	344	351	358	365	372	379	386	392
331	338	345	352	359	366	373	380	387	393
332	339	346	353	360	367	374	381	388	394
333	340	347	354	361	368	375	382		

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BUSINESS REPLY CARD

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THE AMERICAN CITY MAGAZINE

470 FOURTH AVENUE

NEW YORK 16, N. Y.

Model 450 shown

One mile of street swept for $1.00 or less per curb mile

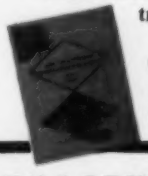
In terms of economy and efficiency, the vast superiority of power street sweepers over the old-fashioned push-broom method of street cleaning is clearly established by this one vital fact: A single, modern power sweeper can do the work of several crews with brooms at a *fraction* of the cost . . . and sweep *cleaner!*

And in over 600 nationwide cities, large and small, WAYNE STREET SWEEPERS are *proving* their dependability, ruggedness and superior *performance* under the severest conditions of climate, terrain and daily use year after year.

Sold and serviced in all principal cities

That's because Wayne clearly establishes its engineering superiority with these exclusive, advanced features:

• Broom Suspension enables Wayne to sweep depressions and rises with greater efficiency. • Rubber Drive Chains for dirt elevator provide longer, trouble-free operation. • Greater Power enables Wayne to sweep at traffic speeds, climb steepest grades, sweep more curb miles faster. • More Effective Hopper Capacity reduces trips to disposal points.



Write for information about exclusive, new Rental Plan for smaller cities!

WAYNE

WAYNE MANUFACTURING CO.

1219 East Lexington Street, Pomona, California

World's Largest Producer of Power Sweepers for Cities and Industry

NEW 6 TON SELF-PROPELLED BANTAM!

* IT SELLS FOR ONLY $11,500

Look what you get in the new CR-35!

- Independent Travel, Forward & Reverse
- Turns INSIDE 40' Circle
- 360° Full Circle Swing
- Power Up & Down Boom Hoist
- Hydraulic Precision Steering
- All-Vision Cab
- Works with 9 different Attachments!

MODEL CR-35

* AS SHOWN with crane boom, outriggers, hook block, (less boom safety stops), f.o.b. Waverly, Iowa.

NO OTHER MACHINE of this size has ever offered so many time and money saving features! Lifting big loads . . . maneuvering in tight spots where other rigs can't go, the New BANTAM will let you realize greater speed and economy than you thought possible. You can't afford NOT to investigate the revolutionary New CR-35! WRITE TODAY.

CARRIER OR CRAWLER BANTAMS are outstanding performers, too! Mobile Carrier Bantam ideal for scattered assignments . . . travels up to 40 MPH! Crawler Bantam works in bad ground conditions where other rigs can't go . . . features 2-speed independent travel!

T-35A

C-35A

SCHIELD Bantam Co.

World's Largest Producers of Truck-Cranes and Excavators.

SCHIELD BANTAM COMPANY
234 Park Street, Waverly, Iowa

Please send me the FREE Brochure on Materials Handling with a Bantam!

AC-10

Name _____

Title _____

Company _____

Address _____

Catalogs for You

Write directly to the manufacturers or use coupon on page 29

Solves Your Drainage Problems

359 Latest edition of the Armco *Handbook of Drainage and Construction Products* will help solve any drainage or construction problem that is troubling your community. The book features a complete index with cross-references, special charts and tables, and a discussion of Armco products. For your copy, write ARMCO DRAINAGE & METAL PRODUCTS, INC., MIDDLETOWN, OHIO.

Your Fire Dept. Can Afford This Aerial Ladder

360 Priced to fit the small city's budget, this new steel aerial ladder is an ideal unit for firefighting and overhead maintenance work. It is built on a commercial truck chassis and features a hydraulic hoisting mechanism and a 65-foot ladder. Get full details from THE SEAGRAVE CORP., DEPT. A, COLUMBUS 7, OHIO.

Increase Your Parking Meter Profits

361 The accuracy and rapidity with which Brandt machines sort, count and package coins assure greater parking meter income. How your city can use these coin-handling machines to make parking-meter work more efficient, is discussed in literature from the BRANDT AUTOMATIC CASHIER CO., WATERTOWN, WIS.

Cuts Grass, Mulches Leaves and Shreds Brush

362 Wood's rotary tractor mower clips grass down to an inch high, makes short work of brush "as thick as your wrist," and provides efficient leaf mulching, eliminating the expense of raking and hauling. Easily mounted or hitched to any make tractor, the unit is available in 12 models with one, two or three blades. It is described in literature from the WOOD BROTHERS MFG. CO., OREGON, ILL.

Cuts Pipe or Metals in Seconds

363 Municipal maintenance shops will find lots of use for the new Beaver Speed-Cut abrasive cutting machine, available in both bench and floor-type models. Cutting time ranges from five seconds for 2-inch pipe, to 40 seconds for pipe 6 inches in diameter. A 2-inch cold rolled bar stock may be cut in 20 seconds. Get full details from BEAVER PIPE TOOLS, INC., WARREN, OHIO.

Clean, Straight Traffic Lines

364 A self-propelled line marker unit that paints single or double, solid or skip lines, quickly, efficiently and economically is offered by the UNIVERSAL MFG. & SALES CO., 5211 PACIFIC BLVD., HUNTINGTON PARK, CALIF. The Mark-Rite Model 8088 features automatic guns, air actuated, with adjustable fluid control. Spray guns are easily flushed for cleaning and quickly accessible without disassembling the machine.

(See page 38 for more Bulletins)

Talk about meter

LIFE EXPECTANCY!

LIKE low maintenance, the true life of parking meters is a matter of first importance to budget-conscious community officials. Why? Because *long-lived* meters mean *more net revenue dollars* that can be allocated to relieving traffic and parking problems.

We'll let these facts speak for themselves . . .

According to a recent nation-wide study, meter life averages *less than 10 years!*

But 46% of all Dual meters installed *before* 1943 *are still in operation!*

This year, 2042 Duals celebrate their *18th birthday!*

75% of all Dual meters installed 'way back in 1937 are *still* operating!

And there's plenty *more* proof that Duals are your best choice for on-street or off-street use . . . for *any* parking requirement! Write today for helpful bulletins on SINGLE or DUBL-DUAL meters. Write to *The Dual Parking Meter Company* (Subsidiary of The Union Metal Manufacturing Co.), *Canton 2, Ohio.*

For extra value get **DUAL**
PARKING METERS

Catalogs for You

Write directly to the manufacturers or use coupon on page 29

Does All Your Light Trenching Jobs

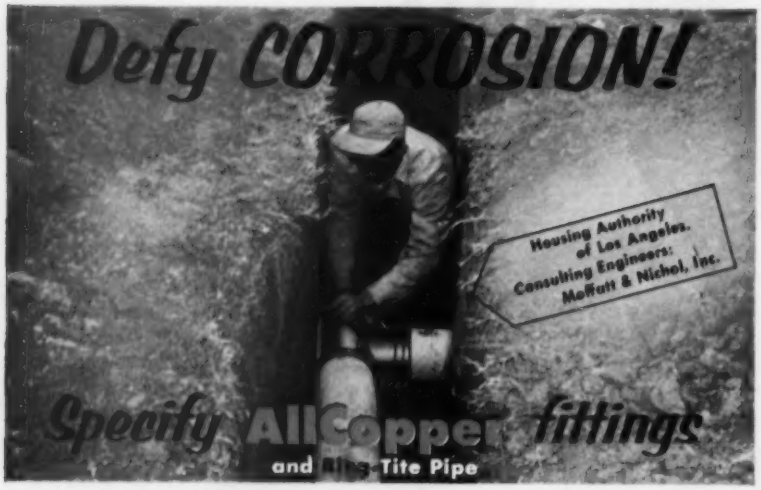
365 Easily operated by one man, the Model LD Ditch-Witch trencher will dig up to 9 feet per minute, depending on soil conditions, and features a road speed of 6 mph. A variable speed mechanical drive gives positive drives in either direction. Chain drives and transmission are safely enclosed, and all controls are easily accessible to the operator. Write THE CHARLES MACHINE WORKS, PERRY, OKLA.

Paint-Protector Markers

366 A pint-sized emergency road marker that's as bright as a fire engine, dangerous looking yet harmless, is offered for use on crosswalks, streets and highways. Made of polyethylene, these markers won't harm tires. Lightweight, they land in correct position when dropped from a truck. Write PLASTIC ENGINEERING INC., 8506 LAKE AVE., CLEVELAND 2, OHIO.

Improved Street Lighting

367 This 100-watt mercury lamp is rated at 4,000 hours, and provides an average service life of 15,000 hours to burn out. For details on initial lumens output, design and other important data, write the WHEELER REFLECTOR CO., 275 CONGRESS ST., BOSTON, MASS.


Defy CORROSION!
Housing Authority of Los Angeles. Consulting Engineers: Moffatt & Nichol, Inc.
Specify AllCopper fittings
and Ring-Tite Pipe

END REPLACEMENT AND REPAIRS of water lines—install durable, non-corroding AllCopper Fittings. Only AllCopper Fittings match the lifetime economy of Ring-Tite A-C pipe!

EASY TO USE AllCopper Fittings have Ring-Tite Coupling ends for lightning assembly. They automatically allow for expansion, line stresses and "ground-shifting." All fittings permit pipe deflections up to 5°.

CORROSION-CONSCIOUS WATERWORKS superintendents and engineers realize that AllCopper's low first cost *is its last cost.* And easy installation appeals to cost-minded contractors.

FACTORY PRESSURE TESTED AllCopper Fittings may be installed without fear of breaks and leaks. Widely used from coast to coast where lines are laid for *permanent service.*

COMPLETE RANGE OF SIZES and types of AllCopper Fittings available for immediate delivery Write for "Water Works Design Bulletin RT-1."

R. H. BAKER & CO., INC., 2070 E. Slauson Ave., Huntington Park 1, Calif.

"INSTALL AllCopper FITTINGS—
FOR THE LIFE OF YOUR PIPE"

Fences and Gates

368 A new booklet from THE STEWART IRON WORKS CO., INC., P. O. Box 1039, CINCINNATI 1, OHIO, discusses the use of iron picket and chain link wire in protecting public property. The fences and gates made by this company are constructed for long wear and dependability. They are available in a series of standard designs to blend with any architectural surroundings. Write for *Booklet MC-50.*

Busy Truck-Mounted Backhoe

369 Do you want to know how many municipal tasks you can do well with a Schield Bantam truck-mounted backhoe? Further, would you like a list of prosperous, well-managed cities that are using these units to simplify municipal maintenance jobs? Get the full story on the Model T-35 by writing the SCHIELD BANTAM CO., 234 PARK ST., WAVERLY, IOWA.

Truck Bodies for Municipal Service

370 A new subsidiary of the J. H. Holan Corp. manufactures "budget" service and line bodies which can be modified or furnished with hydraulic and mechanical equipment to fit the particular needs of your municipality. Get full information from the HOLAN THRIFT LINE CORP., EVEREE INN RD., GRIFFIN, GA.

Gratings for Floors, Stairways and Platforms

371 Your city can increase the safety of its water and sewage-plant employees, power and pumping-station personnel, with dependable Klemp gratings. An informative, new catalog discusses the company's open steel flooring, stair treads, drain grates, trench covers, and sidewalk grating. Write the KLEMP METAL GRATING CORP., 6605 S. MELVINA AVE., CHICAGO 38, ILL.

A Wrench for Water Meters

372 An effective answer to the problem of changing meters in the box is offered by the new C-S meter wrench, an economical device that fits all size meter nuts from ⅝- to 1-inch. The unit rachets in a short arc, and features a self-adjusting bottom jaw. It is available from the CITIES SUPPLY CO., SUMTER, S. C.

Efficient Water Treatment

373 How controlled volume pumps can apply chemical solutions needed for efficient sewage and sanitary water treatment, is explained in a new bulletin from the MILTON ROY CO., STATION E, 1300 E. MERMAID LANE, PHILADELPHIA 18, PA. The typical water-treating processes described include coagulation systems, lime-soda softening, hot-process softeners, and demineralization. Write for *Bulletin 953.*

Low-Cost Microfilmer

374 The Recordak Reliant enables you to photograph more than 400 checks or up to 140 letters per minute easily and economically. Interchangeable lens kits afford reduction ratios of 40 to 1, 32 to 1, and 24 to 1. At 40 to 1 reduction, you can record up to 29,000 check-size records on 100-foot film. For full details, write the RECORDAK CORP., 444 MADISON AVE., NEW YORK 22, N. Y.

(See page 39 for more Bulletins)

Obtain these Booklets Free of Charge!

Write directly to the manufacturers or use the coupon on page 29

Fiberglass Traffic Signs Wear Longer

375 Weighing only ⅛ to ⅕ as much as metal signs, economical fiberglass traffic signs are easy to install, won't rust or pit, and are unaffected by salt air, acids or fumes. The background colors, white, red and yellow, go through the sign and cannot wear or chip off. Dura-Signs are fully described in literature from PERRY PLASTICS, ERIE, PA.

Aids Coagulation in Water, Sewage

376 Activated silica, valuable as a coagulant aid in water purification and waste-treatment processes, promotes increased treatment plant efficiency. A new activator, Model 63 for the continuous preparation and feeding of this activated silica is offered by the OMEGA MACHINE CO., 358 HARRIS AVE., PROVIDENCE, R. I. It is described in *Bulletin 63-MI*.

Protects Wood Structures

377 This new water-repellent preservative adds years to the life of benches, fences, flooring, and other wood surfaces in your community. Woodlife won't discolor the wood, is odorless when dry, and provides an excellent base for paint or varnish. It prevents decay without increasing the inflammability of the wood. Get full information from the PROTECTION PRODUCTS MFG. CO., 2305 SUPERIOR AVE., KALAMAZOO, MICH.

New Hydra-Hammer Does Four Different Jobs

378 In addition to breaking concrete pavement, streets and sidewalks, the Ottawa Hydra-Hammer cuts asphalt, sets posts, tamps rock, cinders or soil, and compacts blacktop patches. The company also offers dependable front-end loaders, deep-digger backhoes, and the Hydra-Way, a versatile unit combining a Hydra-Hammer tower and operating mechanism with a heavy-duty, 11-foot backhoe. Details on all these products are available from OTTAWA STEEL PRODUCTS, INC., OTTAWA, KANS.

Instrumentation & Control for Water Filter Plants

379 This 16-page article by Milford E. Rogers, project engineer for Builders-Providence, contains many photos and diagrams of a complete line of instrumentation equipment for the control of water-treatment plants. For your copy of *Application Bulletin 100-K2A*, write BUILDERS-PROVIDENCE, INC., 358 HARRIS AVE., PROVIDENCE 1, R. I.

Liquid Level Gauges For Water Works

380 *Bulletin L701* describes a complete line of liquid level gauges for indicating, recording, controlling and telemetering. Included are float-type, pressure-type, differential pressure-type, and bubbler-type liquid and water level gauges, in strip and round-chart models. Also air or electric controllers in several models. Write THE BRISTOL CO., WATERBURY 20, CONN.

Trucks and Trailers for Civil Defense

381 Swift builds these truck bodies and trailers with full-height doors at the front and rear and smaller openings on each side, so that all rescue equipment is quickly accessible. A single remote-control lock release quickly unlocks all doors. To provide your community with dependable rescue vehicles, get full information from the SWIFT ALL STEEL BODY CO., INC., 106 HOYT ST., SAGINAW, MICH.

These Bonds Protect Your City

382 When your city awards a contract for an important project, you want absolute assurance that the contractor will complete the work at the agreed figure. A construction performance bond placed with National Surety gives you this assurance. Get full details from the NATIONAL SURETY CORP., 4 ALBANY ST., NEW YORK, N. Y.

(See page 40 for more Bulletins)

The Fastest chipping unit on the market!

Time is Money!

A demonstration will quickly prove how you can cut job time and save money—IN A MATTER OF SECONDS.

It's an ASPLUNDH Chipper

Asplundh Chipper Company
505 York Road, Jenkintown, Penna.
Please send Chipper Booklet.
Name .....
Address .....
City .....

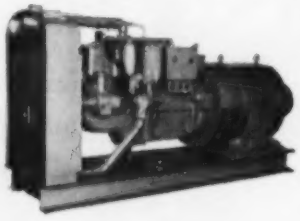
Carol..... Edna..... Hazel.....
did their warnings provide THE TIME NEEDED . . .
for EVERY safeguard . . . EVERY precaution?

Temporary expediency will not guarantee essential lights and power.

That's why schools, hospitals, prisons, banks, hotels, institutions and public buildings of every type are installing the dependable and rugged "automatic" standby power of United States Motors Engine-Generators.

Lights and power for your entire electric requirements can be insured with a U. S. Motors Automatic Standby Power Plant.

In new installations . . . U. S. Motors can supply standard models, gas or diesel, for all your requirements. For special conditions, U. S. Motors Engineers will build units to your specifications.



For complete details, write:

UNITED STATES MOTORS CORPORATION
353 Nebraska Street Oshkosh, Wisconsin

Catalogs for You

Write directly to the manufacturers or use coupon on page 29

Rotary Mower Handles 12 Separate Jobs

383 In addition to its adaptability to mower and tiller attachments, the Midland rotary may be used with a weed cutter, a sickle mower, a light sulky, a dump cart and a snow plow for a variety of municipal applications. The new rotary tiller-mower is powered by a 2-hp Briggs & Stratton engine, and features a convenient throttle control at the handles. It is made by THE MIDLAND CO., S. MILWAUKEE, WIS.

Discourage Speeding

384 Assure accurate speed control with the Traffic-Timer, a self-contained unit that times traffic in either direction. The device features a large, easy-to-read dial, which is lighted for night operation. Carrying is facilitated by a lightweight, fitted case. Full details on the Traffic-Timer may be obtained from the MUNI-QUIP CORP., 1451 W. DECATUR, DECATUR, ILL.

New "Oversize" Traffic Signal

385 A 12-inch adjustable traffic signal is discussed in this new bulletin from the CROUSE-HINDS CO., SYRACUSE 1, N. Y. Besides listing construction and application data, the bulletin contains mounting and price information for type H (stacks three 12-inch sections) or type K (one 12-inch and two 8-inch sections) signals. Copies on request.

Controls Traffic, Stops Auto Accidents

386 The three "E"s for speed control (engineering, education and enforcement), are discussed in literature from TRAFFIC HOUSE, INC., BOX 201, MARSHALL, MICH. This company offers the Speed-Watch, an electrically-controlled timer that aids traffic control and reduces accidents. Booklet on request.

Efficient Power Mower for Parks and Lawns

387 Whether you need a power mower for boulevard or park work, for school or institution lawns, there's a Devere model to do the job for you, quickly, efficiently, and at low cost. Devere uses "suction-lift" to hold the grass in position for the high-speed cutter blades. Grass clippings are returned to the ground as a fine mulch. Get full information from the DEVERE CO., RACINE, WIS.

Coating Protects Water Tanks and Other Metal Structures

388 Tropical recommends its "Zincoater" primer for such exacting applications as galvanized iron building surfaces or towers, painted outdoor signs, heating or air conditioning ductwork, and water tanks. The new priming paint provides a smooth, continuous film for full protection of galvanized iron or sheet zinc. It is effective in any weather, and will not affect the purity of water. Get full details from the TROPICAL PAINT CO., CLEVELAND 2, OHIO.

(See page 44 for more Bulletins)

DELIVERING
WATER CHEAPER

HOUSTON, TEX.

Lockwood & Andrews engineered this 37,920-foot Dresser-Coupled steel line to alleviate water shortages in rapidly growing East Houston. Installed by George Consolidated, this 36-inch steel line was laid under varied and unfavorable conditions, with cover ranging from 3½ to 13 feet.

Water Stays In...and Out

DRESSER-COUPLED STEEL LINE INSURES AGAINST WATER LOSS AND INFILTRATION

Running silt, shifting sand, water from a nearby ship canal . . . three good reasons why Houston specified steel water pipe joined with Dresser Couplings.

City engineers bought, in effect, a "packaged pipe line"—easy to lay out, easy to install, accurately predictable as to cost.

And despite adverse conditions, the job proceeded smoothly. Long, strong lengths of steel pipe—lighter in weight and requiring fewer joints—cut down installation time. Dresser Couplings made joining fast and simple. Bottle-tight sealing gave 100% assurance against leakage at the joints or possible ground water infiltration in the event of pressure drops.

Looking to future economies, the picture is equally bright. A Dresser-Coupled steel line is virtually indestructible, free from costly maintenance. It's a sound, secure, long-term investment in *delivering water cheaper.*

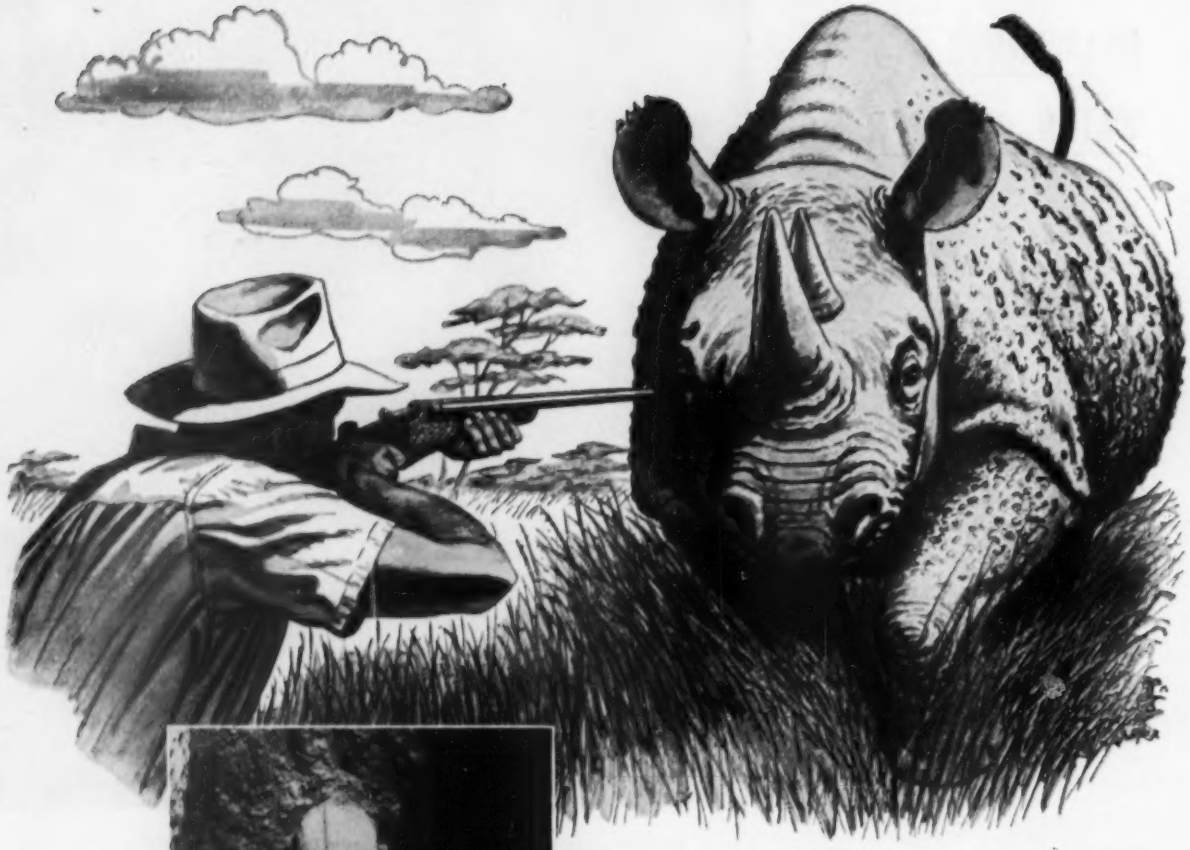
Gasket and follower ring were put on outside ditch.

√ *Wherever water flows, steel pipes it best.* Always put steel pipe and Dresser Couplings in your specifications.

DRESSER®

Dresser Manufacturing Division, 69 Fisher Ave., Bradford, Pa. (One of the Dresser Industries). Warehouses: 1121 Rothwell St., Houston; 101 S. Airport Blvd., S. San Francisco. Sales offices also in: New York, Philadelphia, Chicago, Toronto.

what have they



The rhino lives in wooded, watery districts of Africa and Asia. Its temper is short, its eyesight dim but its scent and hearing are very acute. Though heavy, it is extremely fleet of foot. It feeds mostly at night and its diet is largely vegetarian.

This cast iron main laid in Richmond in 1830 is still functioning after more than a century of service.

MODERNIZED cast iron

in common...

THE RHINO AND CAST IRON PIPE...TOUGHNESS!

The thick, tough hide of the rhinoceros makes it one of the hardest animals to bring down. Toughness is also a dominant feature of CAST IRON PIPE. It serves for centuries.

AND HERE'S THE PROOF: Listed below are some of the many water utilities still using cast iron pipe that was installed a century or more ago.

DEPARTMENT OF WATER AND WATER SUPPLY, City of Albany, New York
ALEXANDRIA WATER COMPANY
Alexandria, Virginia
BUREAU OF WATER, DEPT. OF PUBLIC WORKS, Baltimore, Maryland
PUBLIC WORKS DEPT., WATER DIVISION
Boston, Massachusetts
DEPARTMENT OF PUBLIC WORKS, DIVISION OF WATER, Buffalo, N. Y.
WATER WORKS DEPARTMENT
Chicago
COLUMBIA WATER COMPANY
Columbia, Pennsylvania
BOARD OF WATER COMMISSIONERS
Detroit, Michigan
CITY OF FREDERICK WATER DEPT.
Frederick, Maryland
PUBLIC SERVICE COMMISSION
City of Halifax, N.S., Public Water Supply
WATER BUREAU OF THE METROPOLITAN DISTRICT, Hartford, Connecticut
MUNICIPAL WATER WORKS
Huntsville, Alabama
BUREAU OF WATER
Lancaster, Pennsylvania
CITY OF LYNCHBURG WATER DEPARTMENT, Lynchburg, Virginia
MOBILE WATER WORKS COMPANY
Mobile, Alabama
QUEBEC HYDRO-ELECTRIC COMMISSION
Montreal, Quebec
PUBLIC WORKS DEPT., WATER-WORKS & SEWERAGE DIV., Montreal, Quebec
PENNICHUCK WATER WORKS
Nashua, N. H.
WATERWORKS DEPARTMENT
City of Nashville, Tennessee
DEPT. OF WATER, GAS & ELECTRICITY
New York, New York
DEPT. OF PUBLIC WORKS, BUREAU OF WATER, Philadelphia, Pennsylvania
BUREAU OF WATER, DEPT. OF PUBLIC WORKS, Pittsburgh, Pennsylvania
POTTSVILLE WATER COMPANY
Pottsville, Pennsylvania
BUREAU OF WATER
Reading, Pennsylvania
DEPT. OF PUBLIC UTILITIES (WATER)
Richmond, Virginia
DIVISION OF WATER & SEWERS
Sacramento, California
WATER & SEWERAGE DEPARTMENT
City of Saint John, N.B.
DEPT. OF PUBLIC UTILITIES, WATER DIVISION, St. Louis, Missouri
WATER DIVISION, DEPT. OF ENGINEERING, Syracuse, New York
DEPT. OF PUBLIC WORKS
Troy, New York
CITY OF UTICA, BOARD OF WATER SUPPLY, Utica, New York
CITY OF WHEELING WATER DEPT.
Wheeling, West Virginia
WILMINGTON WATER DEPT.
Wilmington, Delaware
WATER DEPARTMENT
City of Winchester, Virginia
WATER DEPARTMENT
City of Winston-Salem, North Carolina
YORK WATER COMPANY
York, Pennsylvania
WATER DEPARTMENT
City of Zanesville, Ohio

TODAY... modernized cast iron pipe, centrifugally cast, is even tougher, stronger, more uniform. *Where needed and specified,* it is centrifugally lined with cement mortar to assure sustained carrying capacity throughout its long years of service.

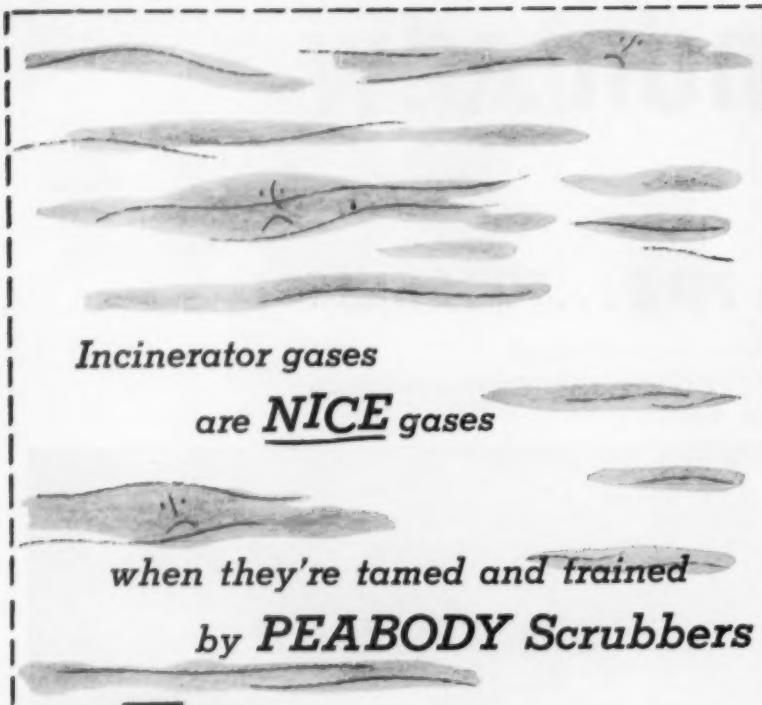
On its record, CAST IRON PIPE is the world's most dependable carrier of water.

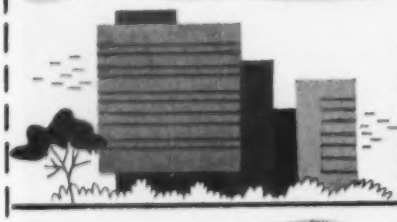
Cast Iron Pipe Research Association, Thos. F. Wolfe, Managing Director,
122 So. Michigan Avenue, Chicago 3.

CAST Q IRON ®

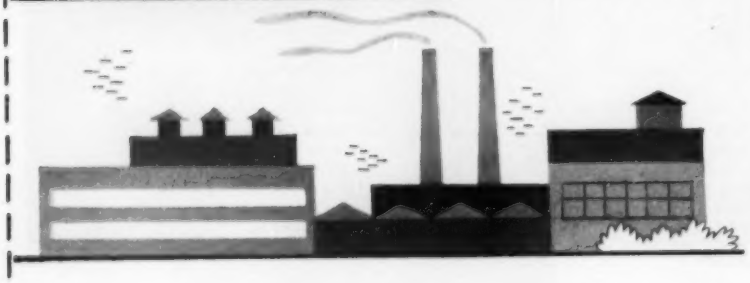
The Q-Check stencilled on pipe is the Registered Service Mark of the Cast Iron Pipe Research Association.

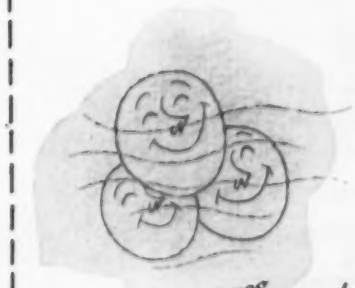
pipe FOR MODERN WATER WORKS OPERATION





Whether it's a flue-fed apartment house unit handling a few pounds of rubbish per hour, or a municipal unit handling 300 tons of garbage a day — Peabody Scrubbers really turn "foul" gas into nice, *clean* gas.





Using a multi-jet impingement baffle plate that affords extremely intimate mixture of gas and scrubbing liquid, Peabody units operate at efficiencies as high as 99%. For full details, write for Bulletin 203-B.

Incinerator gases can be NICE gases!

PEABODY
ENGINEERING CORPORATION
580 FIFTH AVENUE, NEW YORK 36, N.Y.
OFFICES IN PRINCIPAL CITIES
PEABODY LIMITED, LONDON, S.W. 1, ENGLAND

6-129

Catalogs for You

Write directly to the manufacturers or use coupon on page 29

For Emergency Vehicles Fast-Acting Brakes

389 Equip police cars, fire trucks, ambulances, and other municipal vehicles with hydraulic power brakes. Touch-O-Matic brakes work 40% faster than ordinary brakes, bringing cars and trucks to a safe, controlled stop without skidding. Low cost, they are easy to install with pliers and wrench in less than 30 minutes. For complete information, address CONTINENTAL MFG. PRODUCTS, INC., MUNICIPAL SALES DEPT., 10418 VENICE BLVD., CULVER CITY, CALIF.

Sturdy Street-Lighting Poles

390 Not only do these aluminum street-lighting standards last longer, they look better, too, with a silver-gray surface that resists all atmospheric conditions. Further, Hapco poles never require maintenance, assuring a minimum overall lighting cost. They are available for street lighting, traffic-control lighting and area flood lighting. Write the HUBBARD ALUMINUM PRODUCTS CO., 6301 BUTLER ST., PITTSBURGH 1, PA.

Mobile Cranes for Municipal Works

391 Mounted on either crawlers or a 10-wheel crane carrier, a Dixie crane will go anywhere in your city to handle heavy lifting jobs. The 5- or 6-ton unit can also be mounted on any 2½-ton truck, and is available with a wide range of attachments for quick, simple conversion to practically any job. For complete information, write the DIXIE CRANE & SHOVEL CO., INC., 2343 N. SEVENTH ST., HARRISBURG, PA.

Automatic Spray Gun For Road Marking

392 A new, diaphragm-operated spray gun permits efficient and easy striping of roads. The gun eliminates the air cylinder and upper packing gland normally found in most spray guns and, consequently, the greatest cause of air loss in automatic spray guns. It requires about 25% less compressed air for peak efficiency. For additional information write KELLY-CRESSWELL CO., XENIA, OHIO.

Purify Gases From Raw Sewge

393 To remove contaminating hydrogen sulfide from raw sewage gas and prevent corrosion of treatment parts use a Connelly Iron Sponge. Gas can be cleaned, at high or low pressure, to obtain improved purification and lower operating costs at the sewage-treatment plant. The company's engineers are available for discussing and solving any individual sewage-gas problem. Write to CONNELLY, INC., 3154 S. CALIFORNIA AVE., CHICAGO 8, ILL., or 200 S. SECOND ST., ELIZABETH, N. J.

Revising Your Tax Assessments

394 A company with over 30 years' experience in revaluing real estate in numerous cities and counties throughout the country, will help you determine the equitable value of taxable property in your community. For full details, write THE J. M. CLEMINSHAW CO., 1132 UNION COMMERCE BLDG., CLEVELAND 14, OHIO.

CLAY PIPE will serve 10,000 *NEW* Homes in Los Angeles Community

Clay Pipe will be installed by the mile during the next 10 years to serve a $200 million community planned for the Palos Verdes Peninsula. The first subdivision alone, which is within a mile of the Pacific Ocean, requires nearly 10,000 feet of Clay Pipe. Ronald W. Bishop, City Engineer of Torrance, Calif., is in charge of the initial project, and the Colich Construction Co. are the sewerage contractors. Clay Pipe is being used exclusively on this project.

Wherever you see men and machines preparing the vital underground arteries of a modern pre-planned community . . . look for Vitrified Clay Pipe. The "old-timers" in the construction business have always used it . . . and progressive new engineers and contractors are discovering that there's no safe substitute for Clay Pipe. It's completely unaffected by the corrosive action of sewer acids and gases. Detergents can't soften it. Caustic drain-cleaning compounds can't weaken it. Heavy backfill loads can't cause it to oval or squash out. And a wide variety of joint designs and jointing methods insure fast installation and tight, permanently root-proof joints. Always specify Vitrified Clay Pipe. It's guaranteed for half a century!

CLAY PIPE FITTINGS SPEED INSTALLATION

You can always get fittings to match when you install Vitrified Clay Pipe. This Double T Branch, for example, is one of the many Vitrified Clay Fittings that make possible the utmost in flexibility and speed of installation.

Vitrified CLAY PIPE

CLAY DOES NEVER WEARS OUT!

NATIONAL CLAY PIPE MANUFACTURERS, INC.

1520 18th St. N.W., Washington 6, D. C.

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311 High Long Bldg., 5 E. Long St., Columbus 15, Ohio

C-555-1

General accounting and budget control

of any branch of administration

DEMONSTRATIONS IN MUNICIPALITIES ALL OVER THE COUNTRY

The nation's municipal officials have been witnessing remarkable demonstrations of the Burroughs Sensimatic accounting machines—in terms of school accounting problems. They have learned that the Sensimatic provides impressive savings in time and effort when applied to almost any general accounting or budget control job.

The Sensimatic has impressively proved its talent for handling general accounting and budget control as well as many other phases of municipal bookkeeping, most accurately, efficiently and economically.

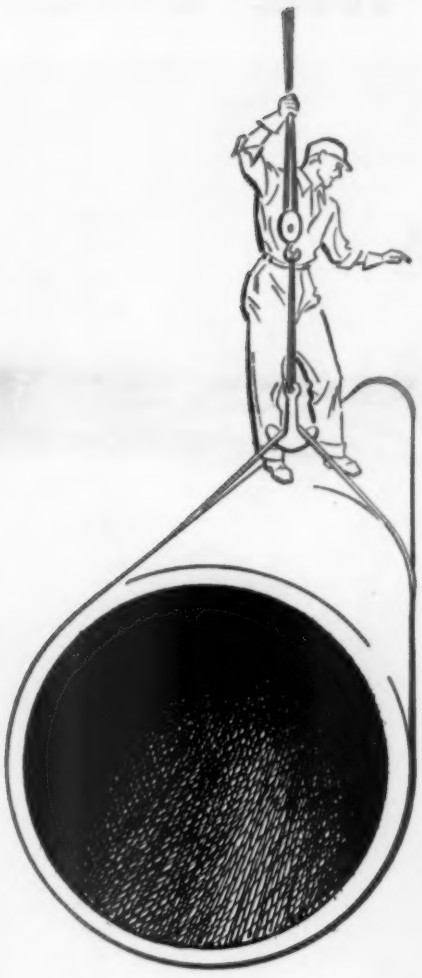
Our designers have provided the Sensimatic with exclusive features that enable it to operate more simply and to accomplish more with every work movement. There are fewer decisions for the operator to make, and the machine itself is so simple that new operators quickly become proficient.

Sensimatic's exclusive sensing panel automatically directs it through every accounting operation, and when a new or different operation is to be performed, a simple twist of the "job selector" knob makes all the necessary changes. The Burroughs Sensimatic is available in a variety of models and totals, to handle all applications. Phone our representative in your area for a demonstration. Or write to Burroughs Corporation, Detroit 32, Mich.

"Burroughs" and "Sensimatic" are trade-marks

BURROUGHS SENSIMATIC
ACCOUNTING MACHINE

WHEREVER THERE'S BUSINESS THERE'S Burroughs



Ford Picks Concrete For Pressure Sewer Line

The Ford Motor Company has a big assembly plant in Louisville, Kentucky. Their pressure sewer system is all concrete steel-cylinder pipe. It includes 16, 20, 24, 30, 36, 42 and 48 inch Price pipe.

Price pressure pipe is good for sewer force mains because it has *flexible bottle-tight joints* and *great strength*. It can be designed for any pressure sewer line 16 inches and up.

And it is good for just about any underground line, because concrete when buried, tends to return to its natural state of stone. It becomes virtually *ageless*.

Ford gets its water supply from the Louisville Water Company. It too is delivered through a line of Price concrete pressure pipe.

Study the advantages of ageless concrete for any type of water or pressure sewer line. Write for our catalog. There'll be no obligation.

Member American Concrete Pressure Pipe Association

Price Brothers Company

1852 East Monument Ave. • Dayton 1, Ohio

Concrete Pressure Pipe for Water Supply, Subaqueous, Pressure Sewer and Culvert Installations

The bonus in the bucket

Watch this demonstration of the MICHIGAN Bonus

1. 300% Torque Multiplication

Watch the powerful crowding action —forcing the bucket into the pile. The Clark Torque Converter provides that smooth, shockless power—as resistance increases, you get more torque automatically—*up to 300 per cent.*

2. Terrific Break-Out Power

Get the bucket-blade into hard-to-dig material, or under a heavy obstacle, and loosen it by "working the bucket" —the two double-acting hydraulic cylinders are actually powerful enough to pull the back wheels off the ground.

3. Low Level Bucket Action

At a height of only 3 feet, you can tip the bucket back with a full load. Low-level bucket action is independent of boom hoist. You can travel a full load at low-level—with excellent visibility and stability, and you *won't* spill the load.

pays for this machine fast!

Capacity is strictly a matter of how much you can pick up in the bucket — NOT how much is printed on a specification sheet.

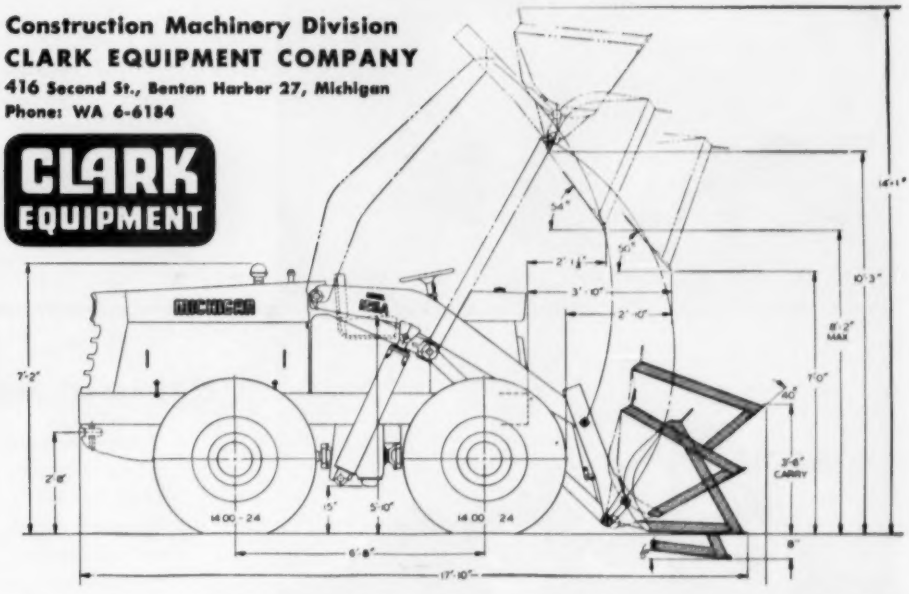
Take a close look at the bucket in the photograph. It shows a typical MICHIGAN® bucket load, heaped-up well over the 1⅝ yard *rated capacity* of this Model 125A. There's at least a 50% bonus in the bucket—and that's a major reason why a MICHIGAN pays for itself fast.

You simply move more with a MICHIGAN! For example, on a 10-hour shift, at a rate of 40 loads per hour, that 50% bonus can add up to *325 extra yards per day!* How long do you think it will take this kind of bonus yardage to pay for a MICHIGAN? We guarantee it won't take long.

Two outstanding features combine to give you bonus yardage on a MICHIGAN. The Clark-built power train, with torque converter and power-shift transmission, gives you more cycles per hour; MICHIGAN bucket action puts more material in each bucket load. For a demonstration, on your own job, if you wish, call your local MICHIGAN distributor, or write or call us direct. And ask for details on the low cost MICHIGAN Lease Plan.

Construction Machinery Division
CLARK EQUIPMENT COMPANY
416 Second St., Benton Harbor 27, Michigan
Phone: WA 6-6184

CLARK EQUIPMENT



Multi-position Bucket Action: note the shaded area of this Model 125A range chart. From 8 inches below ground-level, two big double-acting bucket cylinders pull the bucket back to a 40-degree carrying position at a height of only 3½ feet. The operator has precision control over this independent bucket action.

Bucket

4. Full Power at the Bucket
Step on the brake and automatically put the transmission in neutral—the full hydraulic power goes into the bucket cylinders. Accelerate for faster bucket action and this automatic neutral takes the load off the brakes and torque converter.

5. Look—No Clutch!
Watch the driver *change direction while moving*—by flipping the easy hand-lever on the steering column. There's no clutch pedal on a MICHIGAN—the torque converter and power-shift transmission takes all the work out of gear-shifting.

6. Easy to Drive
Operate the boom and bucket controls with the right hand and spin the steering wheel effortlessly with the left—hydraulic power does the muscle work.

How new principles in PAYLOADER® design mean greater production at lower costs with these new models

Penetration

Full engine torque applied through torque converter and four-wheel-drive gives powerful, sure traction to penetrate hard-digging materials, even under slippery and loose ground conditions. Operator can also vary the digging angle of the bucket during penetration to meet any condition.

Pry-out action

Tremendous pry-out force can be exerted when necessary by using the break-out pads on the ground as a fulcrum for leverage. Load forces opposing the pry-out action are transferred to the ground through the pads instead of to the axle, wheels and hydraulic system.

Break-out action

The remarkable new system of bucket motion tips the bucket back 40 degrees at ground level in a powerful break-out action that gets heaped loads quick and easy, even in shallow cuts and low piles. Tilt-back action can be slow or fast at the will of the operator.

Incorporating an entirely new principle of bucket action, these new "PAYLOADER" tractor-shovels deliver more yardage per shift . . . handle heavier digging and are easier and safer to operate than any tractor-shovel of comparable bucket capacity. They pack more horsepower and have longer wheelbases for greater stability and riding comfort. They have easy, responsive power-steering, torque converter drive, 4-speed full-reversing transmissions and powerful hydraulic brakes.

THE FRANK G. HOUGH CO. presents these 2 new "PAYLOADER" tractor-shovels as the finest ever offered in its 35 years of pioneering and leadership in the tractor-shovel industry. So why not set a date and have your "PAYLOADER" Distributor demonstrate.

model HH

1½ CU. YD.

model HU

1 CU. YD.

Stability and balance

You get heaped loads and — most important of all — you *deliver* bigger payloads because the bucket carry position is at full 40-degree tip-back *just off the ground* — low and in-close. The result is minimum spillage plus maximum balance and stability for fast, safe load delivery.

Driver safety, comfort

Underslung boom-arm design and positioning keeps moving members out of operator's reach at all positions. This eliminates the need for safety guards or screens and increases operator visibility. Longer wheelbase and adjustable molded foam rubber seat contribute greatly to riding comfort and ease of operation.

"PAYLOADER" is the registered trademark for tractors and tractor-shovels made by The Frank G. Hough Co. — pioneers and builders of more unit-design tractor-shovels than all other manufacturers combined. "PAYLOADER" units are sold and serviced by the largest, most experienced Distributor organization in the business.

PAYLOADER®
MANUFACTURED BY
THE FRANK G. HOUGH CO. LIBERTYVILLE, ILL.
SUBSIDIARY—INTERNATIONAL HARVESTER COMPANY

THE FRANK G. HOUGH CO.
710 Sunnyside Ave., Libertyville, Ill.

☐ Send data on Model HH — 1½ cu. yd.
☐ Send data on Model HU — 1 cu. yd.

Name.....
Title.....
Company.....
Street.....
City.....
State.....

1/2 to 3/4-YARD BUCKET CAPACITY

with KOEHRING 205

Extra lift capacity gives this Koehring 205 plenty of stability and strength to handle ½ to ¾-yard clamshell and dragline buckets on a wide work range. As a crawler-mounted crane, it safely lifts up to 10 tons . . . has boom lengths from 30 to 55 feet.

As a truck-mounted crane, this Koehring heavy-duty 205 gives you 15 tons of lift capacity . . . plus the added advantage of rubber-tired mobility for your clamshell, dragline and lift crane work. Truck-mounted 205 has 25 to 55-foot boom lengths (plus maximum 30-foot jib). On tires or crawlers, it readily converts to ½-yard shovel or hoe.

With any attachment here's what you get:

- On rubber-tired truck mounting, 32½ m.p.h. travel speeds.
- On standard or extra-long crawlers, 16, 20 or 24-inch shoes.
- Automatic traction brakes.
- Only 2 major shafts in upper machinery — simple, accessible.
- Antifriction power-flow for dig, lift, and swing.
- 4 hook-rollers, eccentric adjustment.
- Big, 20-inch clutches, self-adjusting.

Before you invest in any excavator or crane, look into this Koehring 205 . . . you'll find it gives you a big *plus* in WORK CAPACITY over other machines in the ½-yard class. See Koehring distributor, or write us for literature.

• • • • • • • • • • • • • • • • • •

KOEHRING COMPANY, MILWAUKEE 16, WIS.

Send ☐ bulletin ☐ spec. sheets on Koehring 205

NAME _____

TITLE _____

DEPARTMENT _____

STREET _____

CITY, STATE _____ CK463AC

KOEHRING COMPANY • MILWAUKEE 16, WISCONSIN

Subsidiaries: JOHNSON • PARSONS • KWIK-MIX

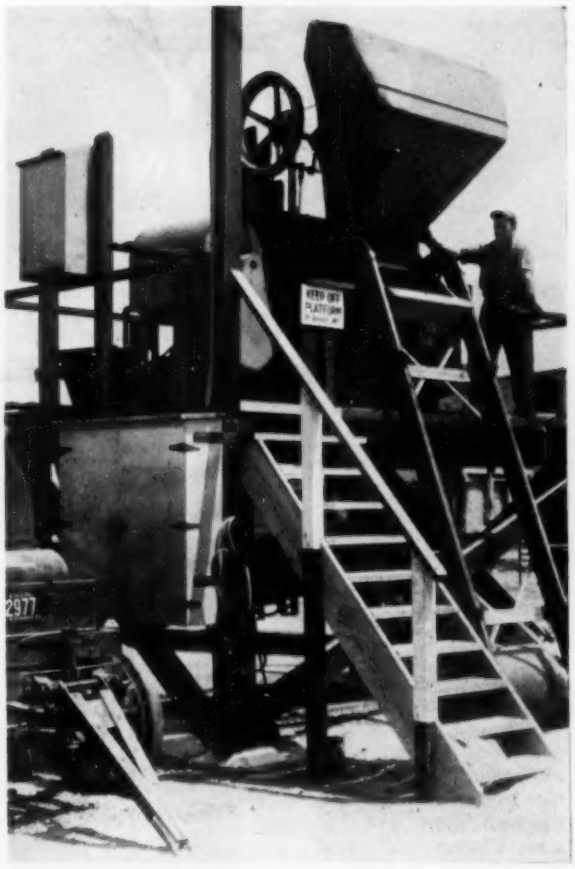
Digs 12½ feet deep 16 to 42 inches wide

Parsons 250 Trenchliner® produces up to 9¾ feet of clean-cut trench per minute, in widths from 16 to 42 inches, and depths to 12½ feet. It undercuts walks and old mains, makes vertical set-ins, hugs curbs, dodges poles . . . saves a lot of hand clean-up on city trenching. For example . . .

With full reverse of all operations, sloping ladder boom makes vertical set-ins, flush with foundation walls . . . undercuts sidewalks, sewers, mains. Boom is shiftable, cuts within 12 inches of side obstructions in narrow streets, alleys. Spoil conveyor shifts by power through machine in less than 1 minute to dodge poles and buildings without swerving from grade line. Belt direction is instantly reversible, dumps right or left. Arc-type conveyor reaches up 6 ft.-8 in. to load into trucks (8 ft.-6 in. with extension section).

Get all the facts in 250 Trenchliner catalog . . . see Parsons distributor, or write us for your copy. Other Parsons models include ladder-types and wheel-types, full crawler-mounted . . . and mobile rubber-tired Trenchmobile®.

PARSONS COMPANY • NEWTON, IOWA
(Koehring Subsidiary)



10 and 14 cu. ft. bituminous mix plants

Kwik-Mix 10 and 14 cu. ft. Bituminous Mixers are quickly set up anywhere as stationary plants. Mounted on skids on elevated platforms, they turn out big tonnages with one-man economy. Operator controls all charging, mixing and discharging without leaving mixer platform. Big flow-line skip receives aggregates from truck at ground level. Skip is raised by power up an extension track to charge open-top drum.

Non-splash measuring tank assures uniform bitumen distribution. Pug-mill mixing action works all materials from end to center of drum, completely coats all particles for even-texture mix. Sweeping action of blades discharges complete batch in as little as 6 seconds. Toggle lever on wide discharge door makes it easy to control rate of discharge, or pour a partial batch.

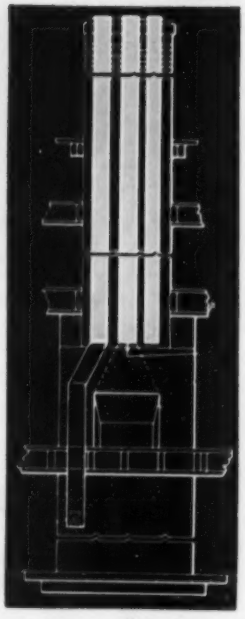
As portable units, mounted on pneumatic tires, Kwik-Mix Bituminous Mixers are easily towed anywhere around town for on-the-job mixing and pouring. Special tower attachment lets you stockpile or load trucks from ground level. See Kwik-Mix distributor . . . or write us for catalog.

KWIK-MIX COMPANY • MILWAUKEE 16, WIS.
(Koehring Subsidiary)

CLAY FLUE LINING

Available in round, square and modular sizes — regular fired or Glazed.

CUTS FIRE ALARMS
REDUCES FIRE LOSSES
LOWERS INSURANCE RATES



Built-in protection! Clay Flue Lining permanently fireproofs the chimney . . . gives proved protection against the second most common cause of destructive fires.

Better draft! The chimney stays smooth and clean . . . draws better . . . with no dangerous accumulations of soot.

Lasting quality! Acid gases in smoke and fumes can't affect scientifically fired clay. It doesn't crack from high temperatures . . . doesn't flake off . . . *never wears out!*

HELP PROMOTE BETTER FIRE PROTECTION IN YOUR COMMUNITY . . .

Defective flues and chimneys are responsible for an annual fire loss of 25 million dollars — second only to fires caused by careless smoking. To help stop this needless waste in your community . . .

CLAY FLUE LINING *Institute*

WRITE FOR "A Standard Ordinance for Chimney Construction," recommended by the National Board of Fire Underwriters. Urge its adoption in your city's building code!

You Can Trust This Mark of Quality

CLAY FLUE LINING INSTITUTE
6118 First National Tower, Akron 8, Ohio

CONTACT AN INSTITUTE MEMBER WHEN YOU WANT THE BEST

American Vitrified Products Co. • Dee Clay Products Co., Inc. The Evans Brick Co. • The Kaul Clay Mfg. Co. • The Kopp Clay Co. • Larson Clay Pipe Co. • Malvern Flue Lining, Inc. Mill Hall Clay Products, Inc. • Natco Corp. • Peerless Clay Corp. Streitsville Brick Co.

FL-1154-19B

NO PLANT GROWTH

WHEN YOU USE
DOLGE
SS WEED-KILLER

For areas where you want ALL unsightly, fire-inviting weeds and grasses eliminated, such as railroad sidings, along fences and abutments, parking lots, drives and walks. An economical solution of SS Weed-Killer kills plants and seeds on contact, then works down through the soil, killing roots and sterilizing surrounding earth—affording freedom from weeds for as much as an entire year!

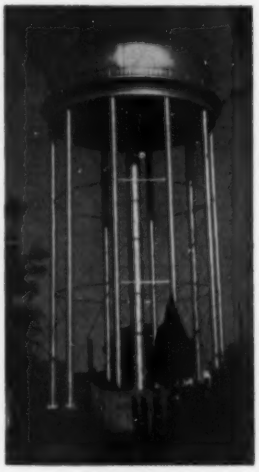
And . . . for keeping lawn areas, seeded traffic islands and other improved areas free from noxious weeds, use E.W.T. SELECTIVE WEED-KILLER. Non-injurious to most grasses.

Scientific chemical weed control literature on request.

FOR FREE SANITARY SURVEY OF YOUR BUILDINGS SEE YOUR DOLGE SERVICE MAN

dependable
DOLGE
WESTPORT, CONNECTICUT

A CENTURY OF EXPERIENCE IN TANK DESIGN



● Established in 1854, COLE elevated tanks have provided a dependable water supply for mills and communities.

COLE quality is assured by careful, experienced designing and watchful supervision from blueprint to finished tank.

Send us your inquiries for tanks from 5,000 to 2,000,000 gallons—stating capacity, height to bottom, and location.

●

Write for latest Cole catalog — *Tank Talk.*

●

R. D. COLE
Manufacturing Co., Newnan, Ga.

- TANKS
- TOWERS
- CYLINDERS
- VESSELS
- STANDPIPES

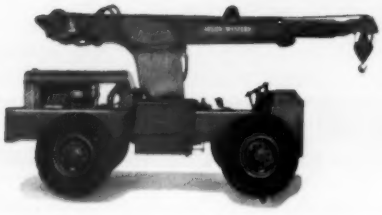
AUSTIN-WESTERN

CONSTRUCTION EQUIPMENT

built to Outperform

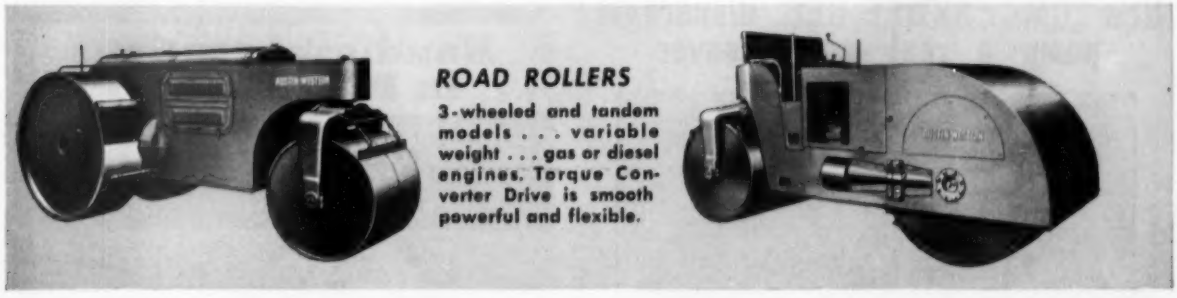
POWER GRADERS

4 x 4 and 6 x 6 models, each with exclusive All-Wheel Drive and All-Wheel Steer for maximum traction and maneuverability, plus a wide assortment of time-saving, money-making attachments.



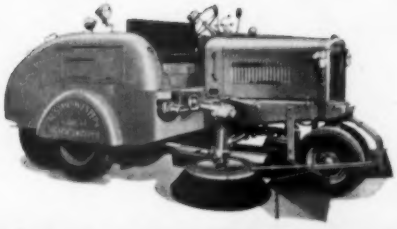
HYDRAULIC CRANES

Self-propelled and truck-mounted models. The telescopic boom raises and lowers, rotates 360° and handles a wide variety of jobs with superb precision.



ROAD ROLLERS

3-wheeled and tandem models . . . variable weight . . . gas or diesel engines. Torque Converter Drive is smooth powerful and flexible.



MODEL "40" SWEEPER

Single or double gutter broom . . . front steer for safety and maneuverability . . . rear dump for convenience . . . broom sweeps directly into hopper for efficiency and economy.

Your nearby distributor will gladly furnish special catalogs on any or all Austin-Western products.

Austin-Western

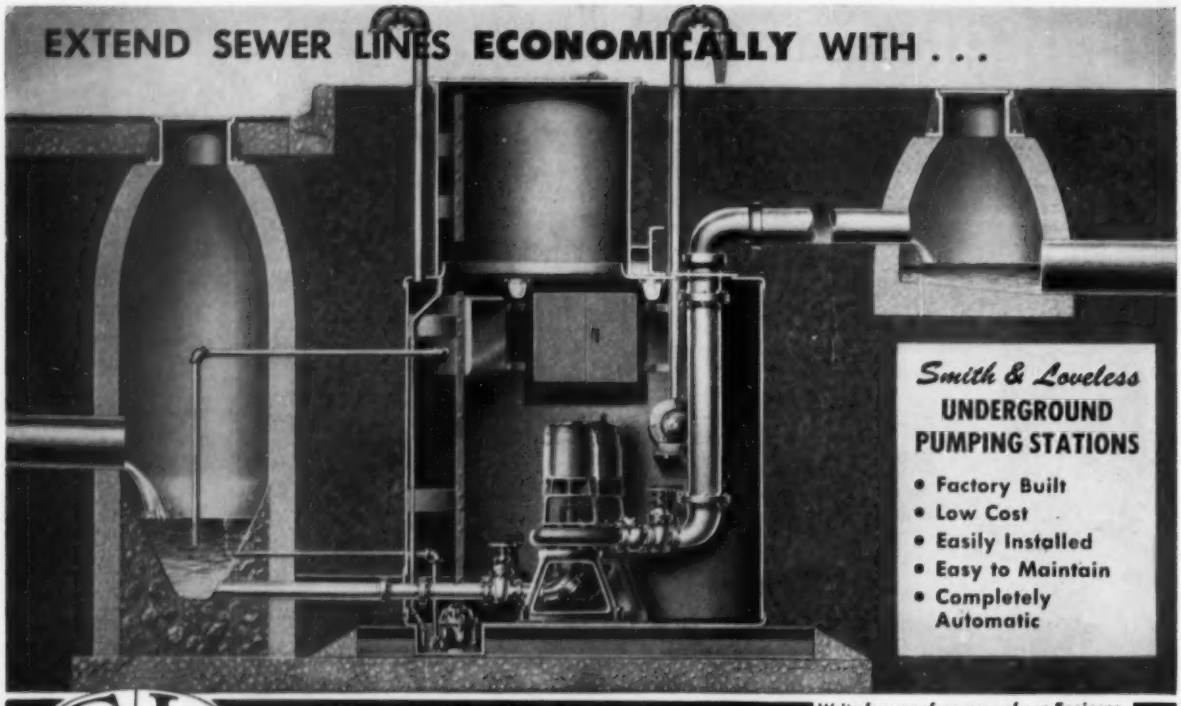
Power Graders · Motor Sweepers
Road Rollers · Hydraulic Cranes

BALDWIN BLH LIMA HAMILTON

Construction Equipment Division

Manufactured by
AUSTIN-WESTERN COMPANY
Subsidiary of Baldwin-Lima-Hamilton Corporation
AURORA, ILLINOIS, U.S.A.

EXTEND SEWER LINES ECONOMICALLY WITH . . .



Smith & Loveless
UNDERGROUND PUMPING STATIONS

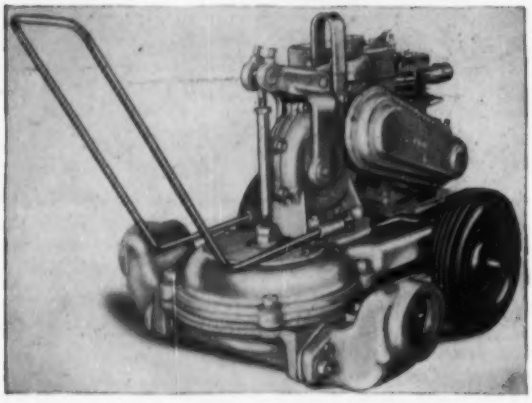
- Factory Built
- Low Cost
- Easily Installed
- Easy to Maintain
- Completely Automatic

S&L *Smith & Loveless, Inc.*

Write for your free copy of our Engineering Data Manual, containing full details on Smith & Loveless Pumping stations.

P. O. BOX 8172, DEPT. A, KANSAS CITY, MO., Plant, MERRIAM, KANSAS

New CMC SKWEE-GEE diaphragm pump a real money saver



A NEW TYPE VARIABLE-SPEED, VERTICAL-STROKE PLUNGER that assures a much longer diaphragm life and greatly increased efficiency, is a real money-saving feature of CMC'S new SKWEE-GEE diaphragm pump.

A combination 2" and 3" pumper, the SKWEE-GEE is now the best pump in the business for jobs ranging from de-watering to pumping sludge. Can't be beat for high suction lifts, seepage control, small well-point dewatering jobs.

SKWEE-GEE primes dry at 25 feet. Provides total heads up to 40 feet. Standard plunger stroke 3" with alternate 2¾" by simple adjustment. Briggs air-cooled engine.

Write for Bulletin FD-L3-55. **Construction Machinery Company,** Waterloo, Iowa.

Handiest Locations in PITTSBURGH

Hotel **Pittsburgher**
PITTSBURGH, PA.
Diamond Street below Grant

Right in the heart of the Golden Triangle—Hotel Pittsburgher

400 outside rooms with bath. Large-screen television and radio at no extra charge in every room. Air conditioning. Two restaurants. *ATlantic 1-6970*

Hotel Pittsburgher MOTEL

Opposite Greater Pittsburgh Airport on Airport Parkway west. 56 air-conditioned rooms with large-screen television at no extra charge, tile bath, private phone. *AMherst 4-5152*

a Knott Hotel

JOSEPH F. DUDDY, GEN. MGR.

A TWIN DEAL

that equips you for any BLACK TOP PAVING JOB

HERE is a combination that makes money on any size bituminous paving job you are faced with. The Blaw-Knox PF-90 Bituminous Paver Finisher has proved itself the last word for highway specification work. It will outproduce any other asphalt finisher on the market today. Wheel operation eliminates the 500 to 700 parts characteristic of crawler design and pneumatic tires absorb the irregularities in the subgrade leaving a smooth, clean sheet of pavement. Rugged construction built around a rugged frame of unusual design eliminates the constant rebuilding and its attendant costs. This is only part of the story that is making contractors replace present equipment. There is a new catalog that is yours for the asking.

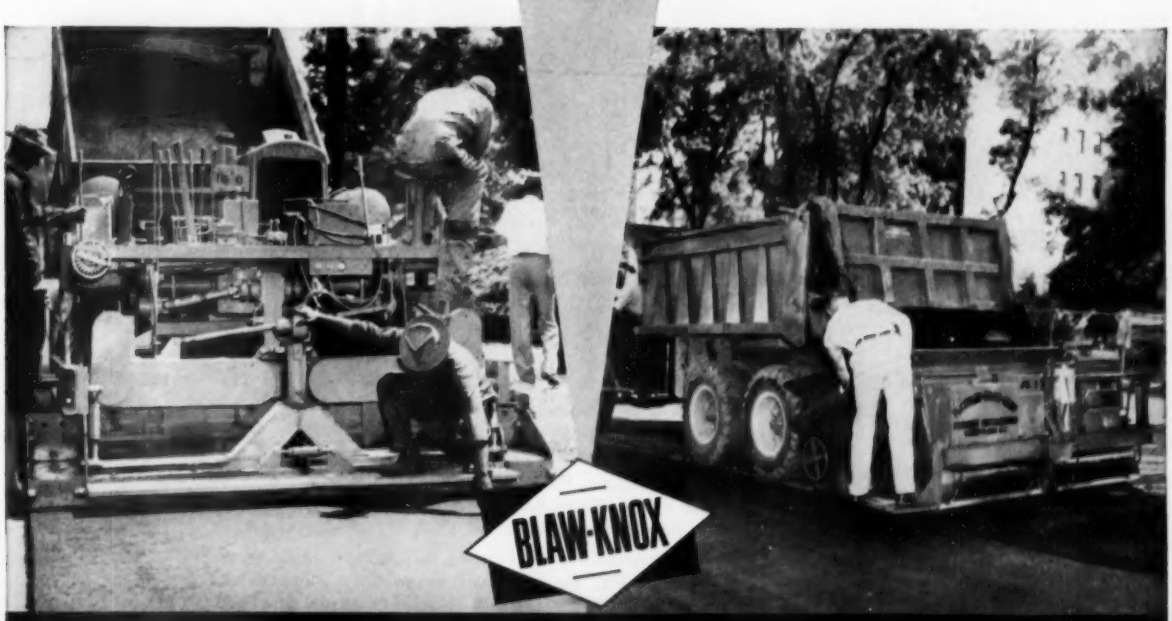
BLAW-KNOX COMPANY

On wheels it will pave for less

HERE is the finest thing in tow-type asphalt spreading equipment. The Adnun Jr. is built for years of service and the overlapping oscillating screed combined with the Adnun feature of Continuous Course Correction assures a smoother course with tighter longitudinal joints.

The Adnun is built on a sturdy, box frame. All bearings are anti-friction. Transmission has cut gears with shafts on anti-friction bearings, all running in an oil bath. Dual controls are standard and power is available for moving the empty paver, permitting it to relocate itself without waiting for trucks or wasting truck time. If you are bidding on parking lots, driveways, playgrounds and similar jobs, the Adnun Jr. will give you high output at low cost. Ask for the new catalog.

CONSTRUCTION EQUIPMENT DIVISION
1904 State Street • Nunda, N. Y.



ASPHALT AND CONCRETE PAVERS

Handles Dozens of Jobs...

FAST, EASY LOADING—Ford Tractor and loader speed snow removal; salt and chemical handling; dirt, sand and gravel loading. Versatile, maneuverable, easy to operate.

BETTER BLADING—You can use a Ford Tractor and rear blade to shape crowns, level berms, mix aggregate, grade, backfill and ditch. Fast, easy hydraulic operation.

ECONOMICAL MOWING—Ford Tractor and rotary cutter speed roadside and golf course mowing, clear bridle paths and park trails. Exceptionally low maintenance costs.

...the Low Cost FORD TRACTOR

LOW COST DIGGING—Ideal for water, gas, sewer and street department work. Used by smaller communities for sanitary landfill garbage disposal. Compact, easy to operate.

FAST, CLEAN SWEEPING—Ford Tractor and broom keep streets, gutters, sidewalks and parking areas clear of trash and dirt in the summer, leaves and snow in the winter.

LOWER TRENCHING COSTS—Ford Tractor with trencher saves time and labor on road and street construction, utility service connections, sewer and drainage systems.

Ford TRACTORS

TRACTOR AND IMPLEMENT DIVISION
FORD MOTOR COMPANY
Birmingham, Michigan

Now, as never before, Ford Tractors meet the needs of governmental units.

First, because there are now a number of Ford Tractor models from which to choose. There are power sizes to fit a wider range of governmental requirements, low prices to fit almost every community budget.

Second, because Ford Tractors are adaptable to many different types of work. They can be equipped to handle a great variety of jobs, so they stay busy all year long.

It's this versatility that cities, townships and counties like *best* about Fords. But there's much more they like, too. Ford Tractor economy, speed, and ease of operation mean worthwhile savings in time, money and manpower.

See how you can stretch tax-dollars by handling dozens of *your* jobs with a low-cost Ford Tractor. Call your nearby Ford Tractor and Equipment Dealer and get the facts first-hand.

BROS *tip sheet* **EXTRA**

50 HP, TORQUE CONVERTER DRIVE, FULL OSCILLATION FEATURED IN NEW BROS SELF-PROPELLED ROLLER

MAT RESURFACING, SEAL COAT JOBS AND SHALLOW LIFT COMPACTION... DONE SMOOTH AND FAST BY BROS SP-54!

Minneapolis, Minn. "This sonuvagun is just what I've been looking for in a pneumatic tire roller!"

... That's the standard reaction from the many road contractors who've gone over the new BROS self-propelled 5 x 4 pneumatic tire roller with a fine tooth comb.

Backed by special design and exhaustive testing, the SP-54 is unquestionably the nigh perfect machine for mat resurfacing, seal coating and compaction jobs in the shallow lift range. And it's easy to see why:

Torque converter drive, 3-speed transmission and shuttle gear provide the smooth, high maneuverability needed for the exacting compaction results being specified these days. Combined with the 50 hp engine, you've got a smooth flow of real power at 0 to 18 mph speeds — both forward and reverse.

FULL OSCILLATION

Here, take a look at the full oscillation of all wheel pairs on the SP-54. This feature is engineered into the front wheel pairs as well as the rear for even load distribution for uniform compaction densities... 2,000 lbs. per wheel or 265 lbs. per lineal in. of rolling width.

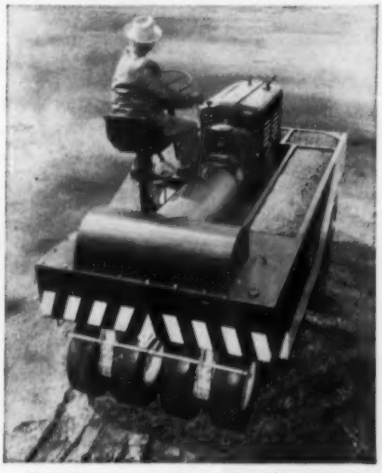
100% COVERAGE

One-half in. overlap of wideface front and rear tires provide solid coverage over entire surface. Drawing shows overlap and the flow of compaction exerted to knead out surface voids. On seal coating, this BROS "first" correctly imbeds sand without any grinding or crushing action.

POSITIVE CHAIN DRIVE

Tractive effort is maximized by positive chain drive to *all* rear wheels. Dual chain drives smoothly transmit drive power so there's no wheel spinning or tearing up seal coat surface.

FORE AND AFT VISIBILITY



In both forward and reverse, the operator sees and knows exactly where he's at... another example of how steady, uniform compaction work is inherent in the SP-54's design. Note easy accessibility of shut-off valves under operator's seat for optional front and rear water sprinkler bars.

EASY HANDLING BY HYDRAULIC STEERING

UNIFORM hydraulic steering of the SP-54 gives you sure, smooth control at all engine and roller operating speeds. High turning angle for easy turn around.

Shuttle speed feature of this new roller saves time by eliminating turn-around on short road beds. It eliminates the bugaboo of tipping over chips frequently done by tow tractors — in fact, it saves cost of tractor, too!

DOUBLE BRAKING, NO "DEAD WHEEL" IN REAR

Hydraulic brakes on both rear wheel pairs can be operated simultaneously or separately — as you see here. Loss of tractive effort on one wheel pair is quickly corrected by braking it; this transfers needed drive power to other pair. As is obvious, there's no "dead" wheel to get unit "hung up" on extreme surface contours.

18 FOOT TURN AROUND

Turning radius of the SP-54 is 18 ft., 5 in.; faster job completion because there's no lost motion — busy from morn til night. The SP-54 is built by BROS, the world's largest manufacturer of pneumatic tire compaction equipment.

So get in on lower compaction costs and the best results possible — *right now*. For complete information, write: The Wm. Bros Boiler & Mfg. Co., 1057 Tenth Avenue S.E., Minneapolis 14, Minnesota.

2 CHAMPIONS for BETTER ROAD WORK...

Baughman ICE CONTROL EQUIPMENT

K4SC SALT & CINDER SPREADER

Two-speed transmission for thick or thin applications of cinders, sand, salt, chloride, chat or gravel; oil-sealed clutch for spot-spreading, as at intersections, safety zones, etc.; patented safety baffles for accurate control of spread from 8 to 40 ft. widths. Two models: Power Take-Off (above) and Auxiliary Engine Drive. Write for Bulletin A-398.

IMPROVED HYDRAULIC SPREADMOBILE

Exclusive *"Center-Spred"* design spreads in front of all four wheels. All operations *hydraulically operated* from cab. Other "extras": *Exhaust Heater,* to prevent load-freezing; *Split Bottom Dump* for off-season hauling, dumping. Write for Bulletin A-370H.

BAUGHMAN

BAUGHMAN MANUFACTURING COMPANY

150 Shipman Rd., Jerseyville, Ill.

DEPENDABLE ENTERPRISE ENGINES

STATIONARY & MARINE

HEAVY DUTY POWER

Diesel • Dual Fuel • Tri-Fuel • Spark Ignited Gas

Units from 73 to 6933 HP
48 to 5007 KW

Over a million horsepower at work the world over!

ENTERPRISE
dependable ENGINES

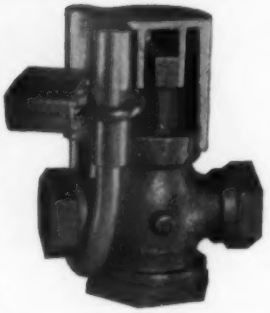
San Francisco, California

Sales and Service in Principal Cities

DEPENDABLE ENTERPRISE ENGINES

NEW BREMER CURB LOCK Controls Water Cut-Offs

• Saves Call Backs • One Trip Installation • No Need to Remove Meter • Fits Most Sizes • Controls Sub-Division Problem • Controls Vacant House Problem • Prevents Loss of Revenue • Used When and Where Needed • Does Not Wear.



Developed in cooperation with Jacksonville, Florida Water Department

$3.95 each

F.O.B. Jacksonville, Fla.

From 1 to 5 Bremer Curb Locks per 100 services is usually sufficient to positively control water cut-offs

Distributors

Western Utilities Supply Company
525 Ninth Avenue South
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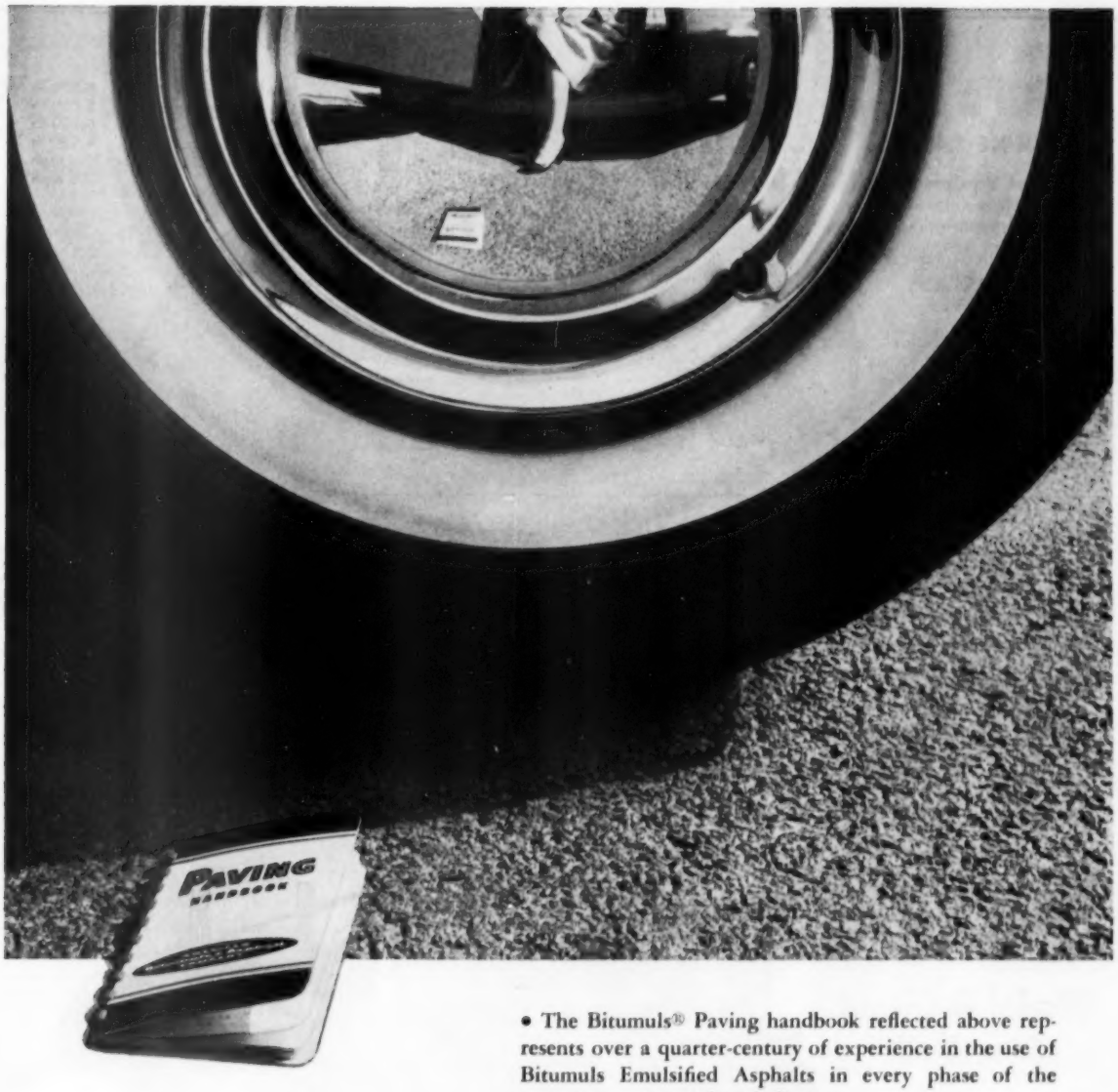
G. C. Hearn
1251 West 1st Place
Mesa, Arizona

Engineering & Equipment Company
14-20 Roosevelt Avenue
Albany, Georgia

Waterworks Supply Company
Portland 2, Oregon

A few territories still open. Interested distributors please write for details.

BREMER BREASE, inc.
1107 MARGARET STREET
JACKSONVILLE, FLORIDA



Over a quarter-century of paving experience reflected here

• The Bitumuls® Paving handbook reflected above represents over a quarter-century of experience in the use of Bitumuls Emulsified Asphalts in every phase of the pavement construction industry.

Roadbuilders and Engineers are constantly working to achieve better pavements and *better paving is our business, too!* In addition to supplying the materials, we maintain a continuous program of investigation, research and field development that assures maximum value from every dollar invested in our products.

Bitumuls Field Engineers working in your area will gladly supply data and specifications covering the use of Bitumuls for base or surface course construction and maintenance. Just write or call our office nearest you.

AMERICAN Bitumuls & Asphalt COMPANY

200 BUSH STREET • SAN FRANCISCO 20, CALIFORNIA

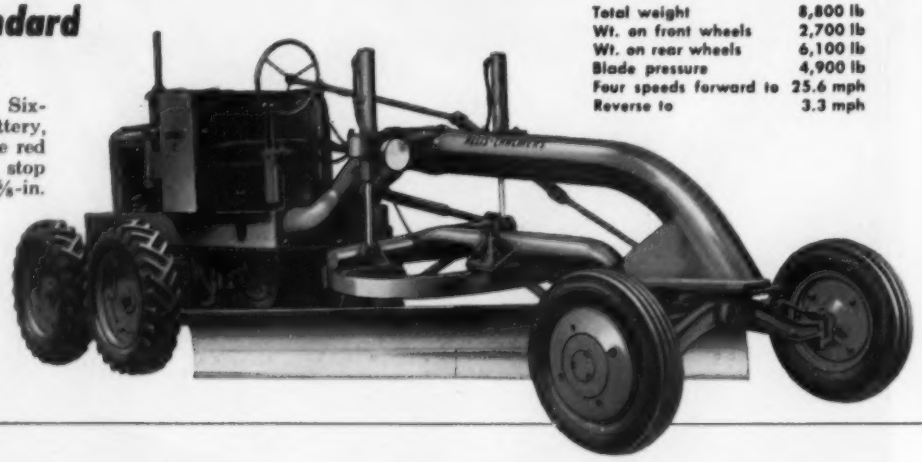
E. Providence 14, R. I. Perth Amboy, N. J. Baltimore 3, Md. Mobile, Ala. Cincinnati 38, Ohio Columbus 15, Ohio Tucson, Ariz. Seattle, Wash. Baton Rouge 2, La. St. Louis 17, Mo. Inglewood, Calif. Oakland 1, Calif. Portland 7, Ore. Washington 5, D.C. San Juan 23, P.R.

Model D *Standard*

(GASOLINE ENGINE)

Standard Equipment: Six-volt electric generator, battery, two white headlights, one red combination rear and stop light, muffler, 10-ft by ⅝-in. moldboard, hydraulic controls for moldboard lift, four 7.50-20 (6 ply) rear and two 6.50-16 (6 ply) front pneumatic tires with regular tubes.

Total weight	8,800 lb
Wt. on front wheels	2,700 lb
Wt. on rear wheels	6,100 lb
Blade pressure	4,900 lb
Four speeds forward to	25.6 mph
Reverse to	3.3 mph



Match your grading needs with

from the Allis-Chalmers model D motor grader line

Model D Diesel *Standard*

Total weight	9,350 lb
Wt. on front wheels	2,760 lb
Wt. on rear wheels	6,590 lb
Blade pressure	4,900 lb
Four speeds forward to	25.2 mph
Reverse to	3.2 mph

Standard Equipment: Twelve-volt electric generator, battery, two white headlights, one red combination rear and stop light, muffler, 10-ft by ⅝-in. moldboard, hydraulic controls for moldboard lift, four 7.50-20 (6 ply) rear and two 6.50-16 (6 ply) front pneumatic tires with regular tubes.

Both gasoline and diesel Model D's are available with any combination of accessories.

You can still buy a Model D for one-third the cost of a large motor grader, and it's the most popular, most versatile small grader on the market. In addition to the units illustrated, the Model D is available with other combinations of accessories . . . or with any of these useful attachments: rear-mounted ⅝-cu-yd loader; shoulder maintainer; one-pass windrow eliminator; V or blade-type snowplows. Ask your nearby Allis-Chalmers dealer for a demonstration . . . and prove the Model D's value to yourself.

Total weight	10,900 lb	Scarifier pressure	4,900 lb
Wt. on front wheels	3,750 lb	Four speeds forward to	25.6 mph
Wt. on rear wheels	7,150 lb	Reverse to	3.3 mph
Blade pressure	6,450 lb		

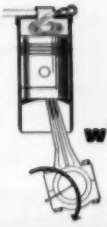
Fully Equipped as Follows: Six-volt electric generator, battery, two white headlights, one red combination rear and stop light, muffler, 10-ft by ⅝-in. hydraulically shiftable moldboard, 6-valve control group, four 8.25-20 (6 ply) rear and two 8.25-20 (6 ply) front pneumatic tires with regular tubes, front wheel lean, power circle turn, hydraulic scarifier, all-steel cab.

Model D
Special
(GASOLINE ENGINE)

new economy and efficiency

NOW AVAILABLE WITH
YOUR CHOICE OF TWO OUTSTANDING
ALLIS-CHALMERS ENGINES

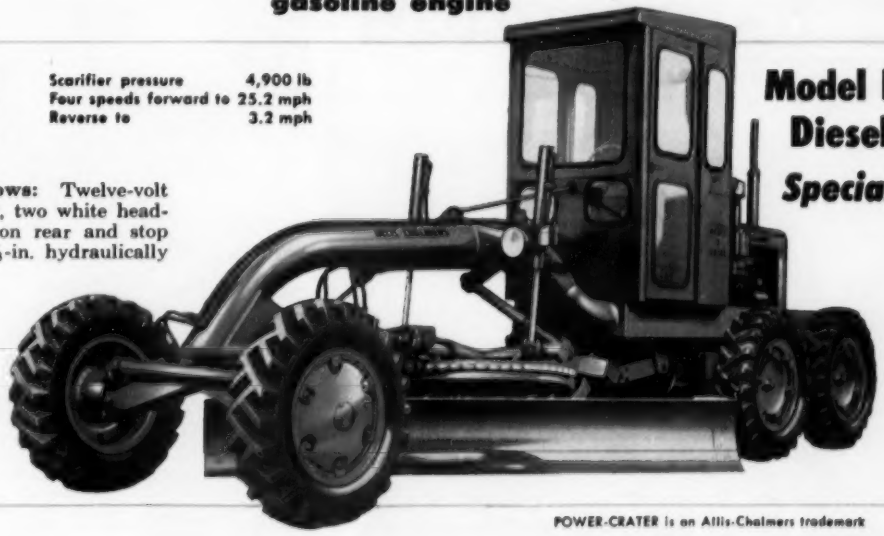
50-hp
POWER-CRATER
gasoline engine



50-hp
diesel engine
with follow-through
combustion

Total weight	11,450 lb	Scarifier pressure	4,900 lb
Wt. on front wheels	3,750 lb	Four speeds forward to	25.2 mph
Wt. on rear wheels	7,700 lb	Reverse to	3.2 mph
Blade pressure	6,450 lb		

Fully Equipped as Follows: Twelve-volt electric generator, battery, two white headlights, one red combination rear and stop light, muffler, 10-ft by ⅝-in. hydraulically shiftable moldboard, 6-valve control group, four 8.25-20 (6 ply) rear and two 8.25-20 (6 ply) front pneumatic tires with regular tubes, front wheel lean, power circle turn, hydraulic scarifier, all-steel cab.



Model D
Diesel
Special

POWER-CRATER is an Allis-Chalmers trademark

ALLIS-CHALMERS

TRACTOR DIVISION • MILWAUKEE 1, U. S. A.

CONSTRUCTION CASTINGS

for **Highway • Municipal • Building**
Industrial • Communication
Public Works • Airport
Utilities • Transportation

Patterns for 15,000 different Gray Iron Castings used on Construction Projects.

Write for our 135-page
Catalog "R," Second Edition

NEENAH FOUNDRY CO.
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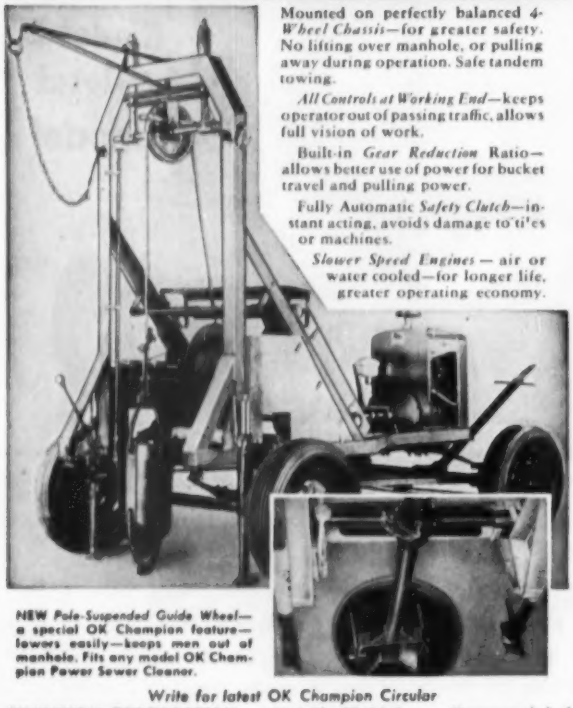
Chicago Office 308 W. Washington St., Chicago, Ill.

OK CHAMPION POWER SEWER CLEANERS



Mounted on perfectly balanced 4-*Wheel Chassis*—for greater safety. No lifting over manhole, or pulling away during operation. Safe tandem towing.

All Controls at Working End—keeps operator out of passing traffic, allows full vision of work.

Built-in *Gear Reduction* Ratio—allows better use of power for bucket travel and pulling power.

Fully Automatic *Safety Clutch*—instant acting, avoids damage to tools or machines.

Slower Speed Engines—air or water cooled—for longer life, greater operating economy.

NEW Pole-Suspended Guide Wheel—a special OK Champion feature—lowers easily—keeps men out of manhole. Fits any model OK Champion Power Sewer Cleaner.

Write for latest OK Champion Circular
CHAMPION CORPORATION • 4716 Sheffield Ave. • Hammond, Ind.

attention civil defense chiefs!

MODERNIZE YOUR
WARNING SIGNAL SYSTEM
with this NEW extra-compact powerful
BENJAMIN SIREN!

TYPICAL APPLICATIONS OF THE BENJAMIN SIREN

for civil defense

for boiler alarms

for plant protection

This new siren is especially designed for modern multiple-signal installations, which overcome problems of atmospheric conditions, wind direction and industrial din. A small-yet-powerful high-torque, 10,000 r.p.m. motor and precision-machined housing makes possible extra-compact design. Famous Benjamin built-like-a-battleship construction prevents moisture from entering and assures long, trouble-free operation.

It's the 20th Century Pony Express!

FREE SIGNAL BOOK! Send for your copy of this most complete book on signaling! Benjamin Electric Mfg. Co. Dept. AC, Des Plaines, Ill.

609 CD

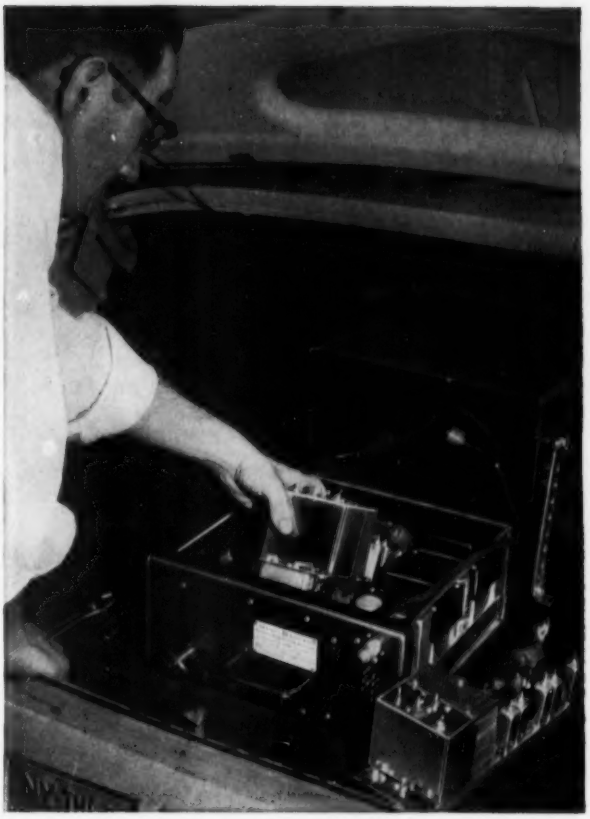
G.E. DEVELOPS NEW PLUG-IN CHASSIS FOR 2-WAY RADIO

NEW PROGRESS LINE saves money on maintenance through faster servicing—protects from obsolescence because chassis are quickly interchangeable.

IN the new Progress Line, transmitter, receiver, power supply and optional chassis are individually rack-mounted in a triple-rigid mobile case. Rapid interchangeability is provided by this rack construction and true plug-in chassis. This plug-in design permits changes in frequency, power, type of reception (narrow or wide band) quickly *at minimum cost, at any time.* You're free of any obsolescence risk!

You may switch Progress Line mobile units—whether front or trunk mount, between vehicles with 6 or 12 volt DC systems. No electrical alterations are needed. And any mobile combination can be converted quickly to a low-cost, 117 volt AC intermittent duty base station by changing only the power supply chassis!

Let a G-E Communications Counselor analyze your radio needs and develop an installation or conversion program planned for long-run savings. Write or call today for full specifications on the new PROGRESS LINE. *General Electric Company, Communication Equipment, Section X1075, Electronics Park, Syracuse, N. Y.*



INDIVIDUAL PLUG-IN CHASSIS minimize capital investment in spares and reduce radio maintenance time! Your vehicles will be back "in service" faster. For instance, you can replace either a transmitter or receiver plug-in chassis right in the vehicle in 5 minutes—using only a screwdriver. Individual plug-in chassis of the new General Electric Progress Line units also provide complete interchangeability between mobile and station transmitters and receivers.

◀ **There is a G-E Authorized Service Station near you. Look for this sign.**

EASY FRONT MOUNTING under the dash. The new G-E Progress Line case is less than 15" deep. For the first time you can have a 90-watt front mount mobile unit in the 25-54 MC band and a 50-watt front mount mobile unit in the 144-174 MC band. In the 25-54 MC band you can now have simultaneous monitoring of 2 channels, in the same case, without additional equipment.

Progress Is Our Most Important Product

GENERAL ELECTRIC

FIRST

. . . and Best!

TODD INSECTICIDAL FOG APPLICATOR

TIFA

Successfully Used for over 10 Years in Community Fly and Mosquito Programs

Tifa was first in the field of fog applicators. Tests have proved it best in the field for space control around the community . . . on the dump, over pools, in suburbs, everywhere insects swarm!

This amazing machine discharges newly-developed insecticides as well as the older types in a true, clean fog which spreads quickly and permeates the deepest crevices. This ability means a better insect control program for your community. Put Tifa to work for you!

Efficiency Features

Uses insecticides in solutions, emulsions or suspensions.

Produces penetrating fog, dry or wet as you wish.

Droplet Control ranges from ½ to 200 Microns.

CARRYING

Underwriters' Listing Seal

Write for illustrated folder with full details and official comments.

Products Division

TODD SHIPYARDS CORPORATION

Headquarters:
Columbia & Halleck Streets, Brooklyn 31, N. Y.

Plant:
Green's Bayou, Houston 15, Texas

WHICH WAY MARRIAGE?

Reno, world's "biggest little city," is famed for gaming and for marital adjustment. In Washoe County Courthouse 5,000 losing gambles in marriage are wiped out, while 20,000 new throws of Cupid's dice are made each year. Here, ***FERRO*** signs give clear direction.

In many interesting locations you'll find ***FERRO*** signs . . . visible day or night; permanent porcelain enamel fused on finest steel.

On any street, road or highway, ***FERRO is the sign of good government.*** For full details, write:

FERRO ENAMELING CO.

1100 Fifty-Seventh Avenue **Oakland 21, California**

Treasure Island sewer plant keeps appearance up, costs down... with RUSTARMOR®

● Maintenance economy plus attractive appearance—both are assured for the City of Treasure Island's sewer plant, St. Petersburg, Florida. RUSTARMOR is used as a protective and decorative coating on five—hundred-g.p.m. pumps and sludge pumps.

Public Works Director Ralph Milliken reports that this durable long-oil alkyd resin enamel is "the best we've ever used...provides economical protection and improves the appearance of our plant."

Here's why RUSTARMOR is so effective:

- **Prevents rust; inhibits rust.**
- **Stands up under severe conditions.**
- **Will never get sticky—it's hygroscopically controlled.**
- **Fade-resistant, regardless of weather.**

For exposed steel areas—tank exteriors, bridges, structural steel—be sure to specify RUSTARMOR. Available in eleven glossy, long-lasting colors. For fact-packed folder and color card CA-4, just write your name, title, firm name and address in margin of this page and mail.

Inertol **INERTOL CO., INC.**

MAINTENANCE PAINTS DIVISION

485 Frelinghuysen Ave., Newark 5, New Jersey
27-M South Park, San Francisco 7, California

INERTOL PROTECTION MEANS LOWER MAINTENANCE COSTS

Don't HIDE from the facts!

FACT: cast iron pipe lasts over 100 years.

FACT: cast iron pipe is inherently stronger, tougher, uniform in quality.

FACT: cast iron pipe offers a proven record of low installation and low maintenance costs.

FACT: cast iron pipe's long, trouble-free life saves millions of tax dollars.

FACT: cast iron pipe is the standard conduit for carrying water underground.

Before you experiment with substitutes in your waterworks system, study these facts and consider the guarantee they offer: that only cast iron pipe gives you a *proven record* of economy through *decades of use!*

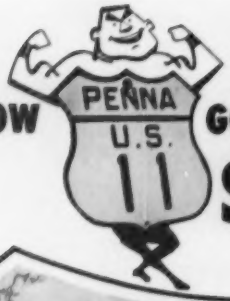
AND ONE MORE FACT: for over three-quarters of a century, experienced city officials have found Clow Cast Iron Pipe offers consistent high quality. They've found Clow gives them excellent service and fast delivery. They know centrifugally cast Clow Cast Iron Pipe offers the greatest economy and it meets all currently approved specifications now in existence. Write today for more facts and actual case histories to learn how Clow Cast Iron Pipe offers you the best long-term investment.

JAMES B. CLOW & SONS

201-299 N. Talman Avenue • Chicago 80, Illinois

and their National Cast Iron Pipe Division, Birmingham, Ala.
Subsidiaries: Eddy Valve Co., Waterford, N. Y.
Iowa Valve Co., Oskaloosa, Iowa

CAST IRON



HOW GOT A PAIR OF HARD SHOULDERS WITH STERLING ROCK SALT

In 100-lb. bags or in bulk

STERLING ROCK SALT STABILIZATION

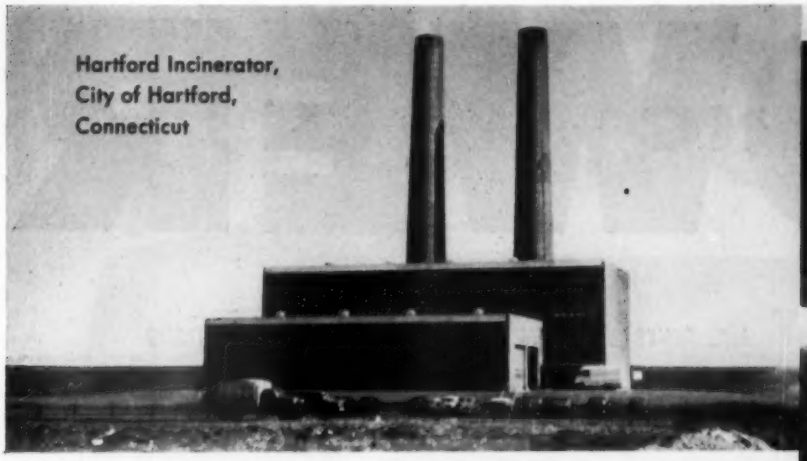
quick . . . economical . . . less maintenance

Sterling Rock Salt stabilization produces safe, all-weather shoulders that have high density, reduced frost heave, reduced loss of material, and reduced dust. Their initial and maintenance costs are low. These shoulders may be constructed with equipment which is usually readily available.

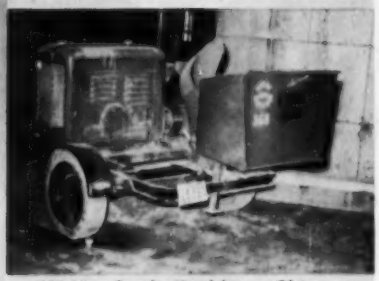
To place an order, or for more information about soil stabilization, communicate with International Salt's nearest sales office.

INTERNATIONAL SALT COMPANY INC.
Scranton 2, Pennsylvania

SALES OFFICES: Atlanta, Ga. • Chicago, Ill. • New Orleans, La. • Baltimore, Md. • Boston, Mass. • Detroit, Mich. • St. Louis, Mo. Newark, N. J. • Buffalo, N. Y. • New York, N. Y. • Cincinnati, O. • Cleveland, O. • Philadelphia, Pa. • Pittsburgh, Pa. • Richmond, Va.
ENGINEERING OFFICES: Atlanta, Ga. • Chicago, Ill. • Buffalo, N. Y.



Hartford Incinerator,
City of Hartford,
Connecticut



(1) Hartford's Fitchburg Chipper

(2) Fitchburg Chipper in action

Modern Hartford disposal plant uses FITCHBURG CHIPPER

Hartford's new municipal incinerator is used to dispose of more than 400,000 pounds of waste every day. The large picture above shows this efficient, attractive plant—one of the most modern in the nation.

An important part of Hartford's up-to-date disposal program is their portable Fitchburg Chipper, which cleans up disposal jobs the incinerator cannot handle, and goes out on location for road use.

Hartford had these problems:

• *Banana Stalk Disposal* • *Brush Disposal on New Roads*
• *Christmas Tree Disposal* • *Road Clearance from Storm Damage*

How a Fitchburg Chipper solves these problems:

Joseph J. Coffey, Superintendent of the Hartford Incinerator, tells you in his own words how Hartford solves these problems: BANANA STALKS: "We chip 2 to 4 tons of banana stalks each week. These stalks will not burn regardless of heat in the furnaces, and we had to dump them until the Fitchburg Chipper went on duty." CHRISTMAS TREES: "During the post-Christmas season we receive many Christmas trees which we can now get rid of without the trouble of watching for burnt-down spike-like stubs which cause much trouble with the incinerator equipment."

BRUSH DISPOSAL: "Our Highway Division has used our Fitchburg Chipper to clean up the brush and branches along newly developed road areas. By chipping brush, the city saves in use of both manpower and trucking costs." ROAD CLEARANCE: "If we get hit again by hurricanes or bad wind storms, we now have an excellent piece of equipment that will enable us to readily open up the streets for emergency traffic by reducing the fallen branches to chips."

As to maintenance, Mr. Coffey says: "Our Fitchburg Chipper will pay for itself in a very short time. Maintenance, so far, is just keeping it supplied with gasoline and fully lubricated. It is easy to handle, easy to store, and very easy to use."

Get the facts!

Mail coupon for big, FREE, colorful booklet. Specifications, operating data, explanation of exclusive Fitchburg Safety Spring, actual letters from users.

Read what leading Fitchburg users say

LINE CLEARANCE

The Shade Tree Service Company, Webster Groves, Mo.: "Our figures show that production has been increased by a good 25% with the use of the Fitchburg Chipper. One man can operate the chipper with ease. He alone can handle as much, and more, brush in the same length of time as could two men loading brush on a platform body."

POWER COMPANY

Rockland Light and Power Company, Nyack, N. Y.: "Our men have been particularly pleased with their Fitchburg Chippers. They are rugged and reliable and the convenience of flexible, yet instant brush disposal has the advantage of promoting good public relations and still gives us efficiency."

Send for FREE BOOKLET

Fitchburg Engineering Corporation
Fitchburg, Mass., Dept. AC-75

Send my Free Chipper Booklet.

Name_____

_____
(Position or Company)

Address_____

City_____ State_____

FITCHBURG ENGINEERING CORPORATION

ELECTRIC POWER

DELCO-REMY A.C. GENERATORS FOR EXTRA-HEAVY ELECTRICAL LOADS

Delco-Remy's new 6- and 12-volt A.C.-D.C. charging systems are the answer to the *extra-heavy* electrical demands of late-model municipal or public utility trucks, cars, and other vehicles equipped with two-way radio, floodlights, or other special electrical units. High wattage output is ample for heaviest electrical loads . . . generators pick up discharged batteries quickly in emergencies. Delco-Remy A.C.-D.C. charging systems are unexcelled at curb-idle . . . furnish up to 180 amperes at higher engine speeds . . . are dependable under the most rugged operating conditions at all engine speeds.

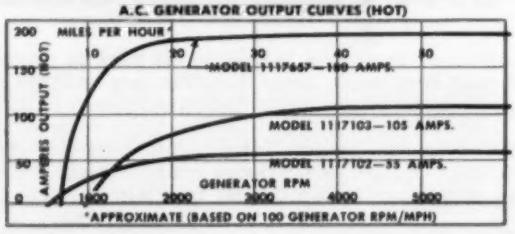
Application packages for both 6- and 12-volt generators, complete with installation instruction sheets for popular makes of cars and trucks, are available. Conversion is simple. See your nearest United Motors distributor for additional data.

A.C. GENERATOR PERFORMANCE DATA (HOT)

Model	Volts	Cut-In RPM	Curb Idle Amperes*	Maximum Amperes	Power Watts SAE	Recommended For
1117102	12	525	39	55	825	All speeds.
1117103	12	960	5	105	1575	All speeds.
1117657	12	550	130	180	2700	All speeds.
1117062-3-4	6	750	38	90	720	All speeds.

*APPROXIMATE (BASED ON 1000 GENERATOR RPM)

A.C. GENERATOR OUTPUT CURVES (HOT)



*APPROXIMATE (BASED ON 100 GENERATOR RPM/MPH)

DELCO-REMY D.C. GENERATORS FOR MEDIUM-TO-HEAVY ELECTRICAL LOADS

Delco-Remy's 6- and 12-volt extra-output D.C. generators are an economical answer to the electrical needs of late-model municipal or public utility trucks, cars . . . other vehicles with additional lights, two-way radios, or other special electrical equipment in medium- to heavy-duty service in suburban areas. Delco-Remy extra-output D.C. generators are low in cost, simple to install, economical to maintain. Performance data on Delco-Remy extra-output D.C. generators are shown at the right.

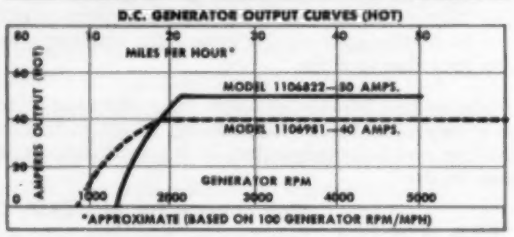
For further details and application data, see your nearest United Motors distributor.

D.C. GENERATOR PERFORMANCE DATA (HOT)

Model	Volts	Cut-In RPM	Curb Idle Amperes*	Maximum Amperes	Power Watts SAE	Recommended For
1106822	12	1300	0	50	750	Low to Medium Speeds
1106981	12	825	14	40	600	Low speeds & idling.
1106757	6	820	†	55	440	Medium to high speeds.
1106758	6	560	26	45	360	Medium Speeds and idling
1106977	6	610	28	55	440	Low speeds & idling.

*APPROXIMATE (BASED ON 1000 GENERATOR RPM)

D.C. GENERATOR OUTPUT CURVES (HOT)



*APPROXIMATE (BASED ON 100 GENERATOR RPM/MPH)

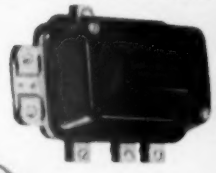
Delco-Remy
ELECTRICAL SYSTEMS

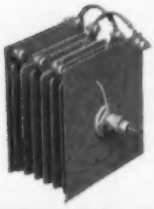
DELCO-REMY • DIVISION OF GENERAL MOTORS • ANDERSON, INDIANA

right for the job

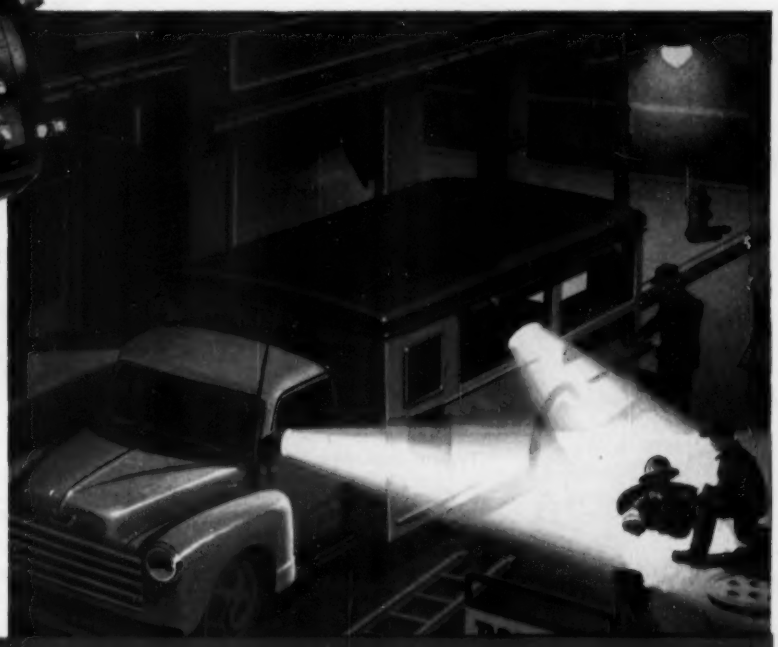
A. C. GENERATOR

REGULATOR

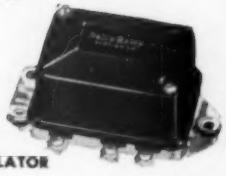




RECTIFIER



D. C. GENERATOR



REGULATOR

A GENERAL MOTORS PRODUCT GM GENERAL MOTORS UNITED SERVICE MOTORS A UNITED MOTORS LINE

DISTRIBUTED BY WHOLESALERS EVERYWHERE

Transite Sewer Pipe provides these 4 basic economies

The engineer, the contractor and the taxpayer —all benefit when Transite® Pipe is used for sewer lines. Costs are cut in many ways—among them the four basic Sewer Pipe economies . . . in system design . . . in installation . . . in operation . . . in maintenance. If you make a quick run-through of the following condensed check list, chances are you will find savings which apply directly to your sewer system problems.

1. System Design

(Typical Economies)

- Use of smaller diameter pipe
- Installation at flatter slopes
- Installation in shallower trenches
- Savings in amount of material excavated
- Smaller earth loads
- Elimination of cradling
- Location of treatment plant at higher level
- Elimination of pumping

Users have found—With its high flow capacity (flow coefficient n= 0.010 derived from the Manning formula) and with its maintained strength, Transite Sewer Pipe contributes to typical system design economies.

2. Installation

(Typical Economies)

- Fewer joints
- Easier handling
- Smaller crews
- Speedier assembly
- Assurance that joints pass severe infiltration tests

Users have found—With its longer lengths, light weight, ease of assembly and tight, quickly made joints, Transite Sewer Pipe contributes to typical installation economies.

3. Operation

(Typical Economies)

- Infiltration treatment cost drastically reduced
- Only normal sewage treated

Users have found—With its tight joints connected by Johns-Manville's Ring-Tite® Coupling, Transite Sewer Pipe contributes to typical operation economies.

4. Maintenance

(Typical Economies)

- Tree roots kept out—minimizes cleaning
- Sewers kept smooth and intact—pipe stays strong, joints stay resilient
- Need for frequent inspections reduced

Users have found—With its maintained strength and with its tight joints, Transite Sewer Pipe contributes to typical maintenance economies year after year.

For further information and your copy of TR-94A, helpful, widely used Sewer Design Flow Chart based on the Manning Formula, write Johns-Manville, Box 60, New York 16, New York

Johns-Manville TRANSITE SEWER PIPE

the asbestos-cement sewer pipe with the tight joints

HERSEY WATER METERS

will give you the most satisfaction per dollar invested, which means the lowest maintenance cost and accurate, trouble-free registration for many years to come.

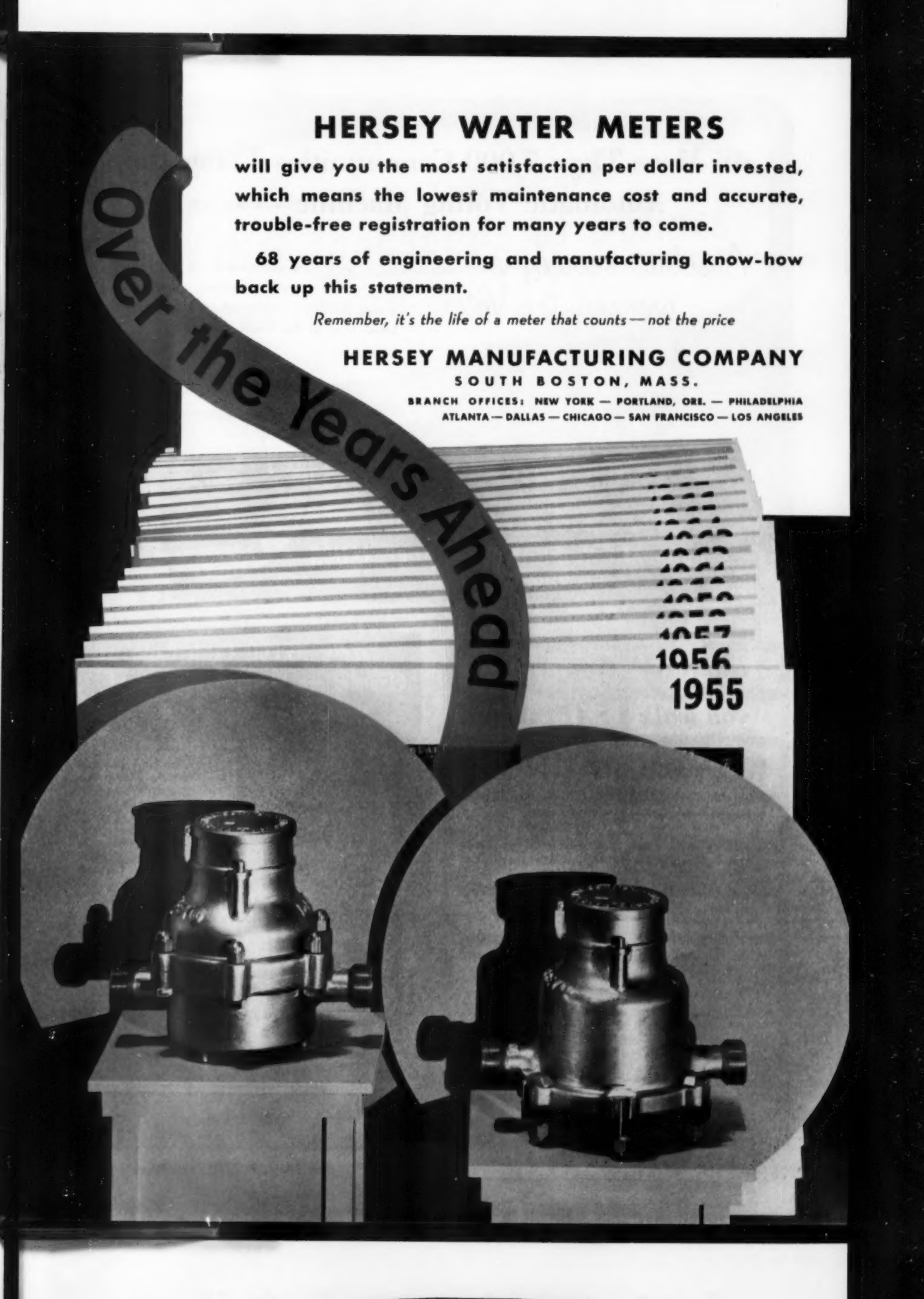
68 years of engineering and manufacturing know-how back up this statement.

Remember, it's the life of a meter that counts — not the price

HERSEY MANUFACTURING COMPANY

SOUTH BOSTON, MASS.

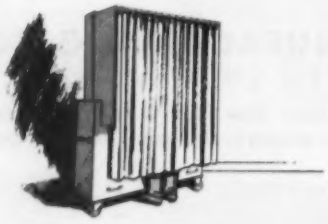
BRANCH OFFICES: NEW YORK — PORTLAND, ORE. — PHILADELPHIA
ATLANTA — DALLAS — CHICAGO — SAN FRANCISCO — LOS ANGELES

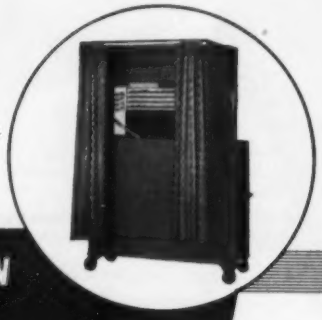


In More Than 7,000 Communities Using the Automatic Voting Machine - - -

Absolute secrecy is assured the Voter...

Each voter casts and *records* his own vote in absolute secrecy provided only with voting machines. Only the voter will ever know how or for whom he voted.





Investigate all the advantages of machine voting by writing—

AUTOMATIC VOTING MACHINE CORPORATION
JAMESTOWN, NEW YORK

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you walk SAFELY on
KLEMP GRATINGS!

OPEN STEEL FLOORING • STAIR TREADS •	• DRAIN GRATES • TRENCH COVERS
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GENTLEMEN:
Kindly send me a copy of your 1955 catalog!

Name.....
Department or Firm.....
Address.....
City.....Zone.....State.....

New **NETCO** Catch Basin Cleaners are Working Throughout the Land in These Cities

Chicago, Illinois
Indianapolis, Ind.
Cumberland, Md.
Boston, Mass.
Fitchburg, Mass.
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Grand Rapids, Mich.
Trenton, N. J.
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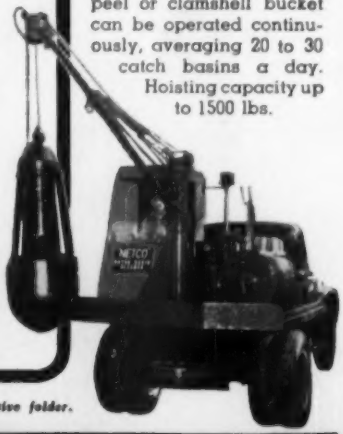
Easily mounted on any short wheel base truck with 8 ft. in back of the cab, the NETCO with orange peel or clamshell bucket can be operated continuously, averaging 20 to 30 catch basins a day. Hoisting capacity up to 1500 lbs.



Send for our 6 page descriptive folder.

NETCO DIVISION
CLARK-WILCOX COMPANY
118 Western Avenue
Boston 34, Massachusetts

HOLMES-OWEN TRUCK LOADERS

SAVING Thousands of Dollars

for MUNICIPAL Users.

LOWERS COST OF WINTER JOBS
The City of Lansing, Mich., makes excellent use of Truck Loaders during the snow and ice period to speed up work of clearing streets, removal of snow from intersections, bridges, etc., hauling of stock-pile materials and numerous other jobs that offer Big Savings to the city. Note unit loading salt for distribution during ice control.

Cuts JOB COST as much as 50%

Trucks equipped with Holmes-Owen Loaders are today reducing the cost of many jobs as much as 50% and offering users a savings amounting to thousands of dollars annually. The use of this equipment substantially lowers the cost of material handling. It assures faster, more efficient loading and hauling. Saves time, labor and equipment by permitting the truck driver to LOAD, HAUL and DUMP, do light digging, grading and cleaning-up without additional man power or the use of more costly equipment. The Holmes-Owen Loader can be installed on most 1½ to 2 ton trucks. It is hydraulically operated, lifts one-half yard per bucket, loads the average truck in four minutes and can easily do the work of several men. See your dealer or write factory today for literature and prices.

ERNEST HOLMES COMPANY
Chattanooga Tennessee

SAVES $27,000 ANNUALLY... Two Truck Loaders in Amarillo, Texas reduced a street cleaning crew from 15 to 4 men . . . number of trucks needed from 5 to only 2. Mechanization of this work cut labor cost $27,000 per year, released 3 trucks for other use.

CUTS COST ALMOST 50% . . . Extensive use of a fleet of self-loading trucks in Birmingham, Ala. reduced cost of maintenance on streets, parks and other public properties almost 50%. Mechanization of such work as spreading anti-skid material on icy streets, removal of dumpings from street sweepers, etc. offers additional savings in time, labor and equipment.

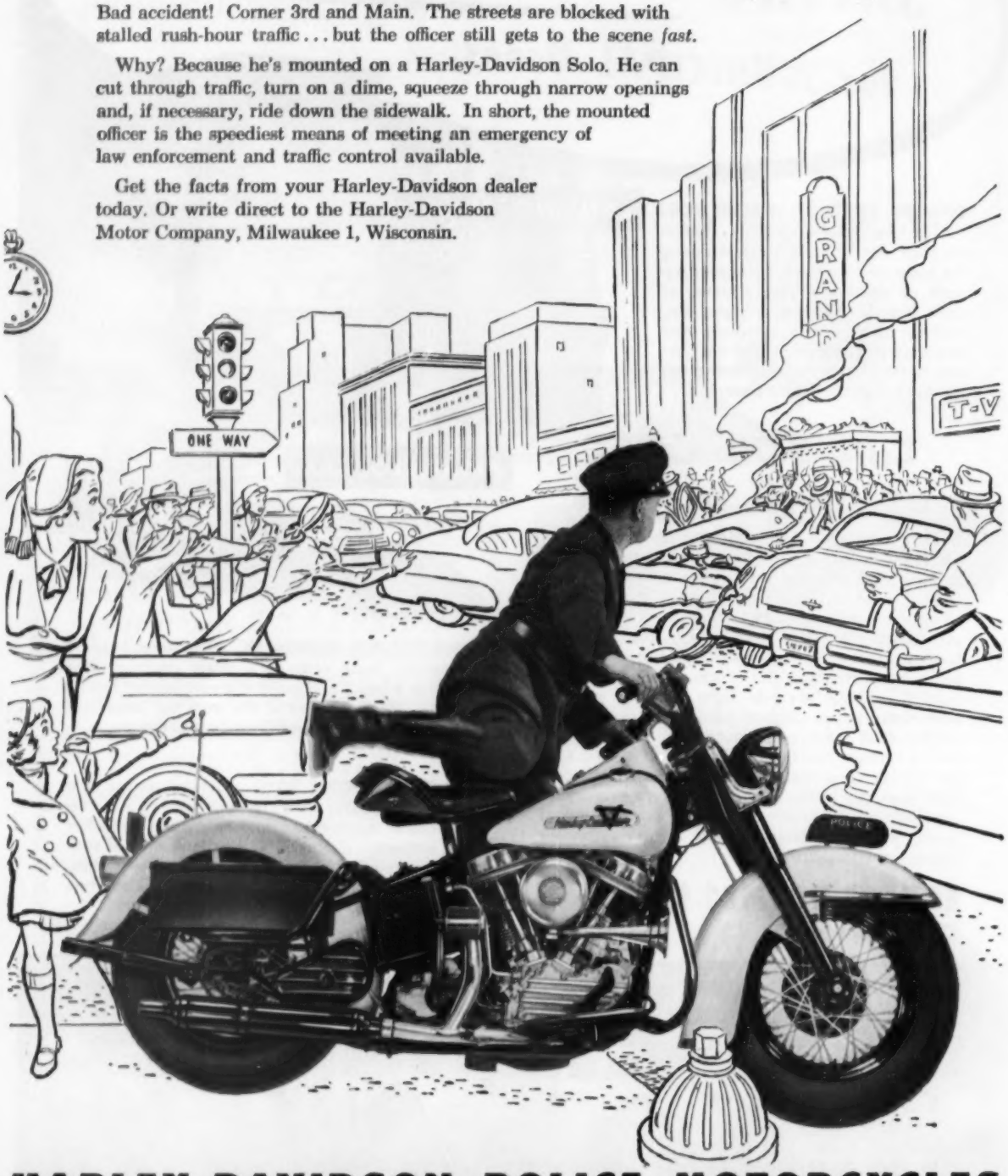
Get to trouble spots *fast* with a

HARLEY-DAVIDSON

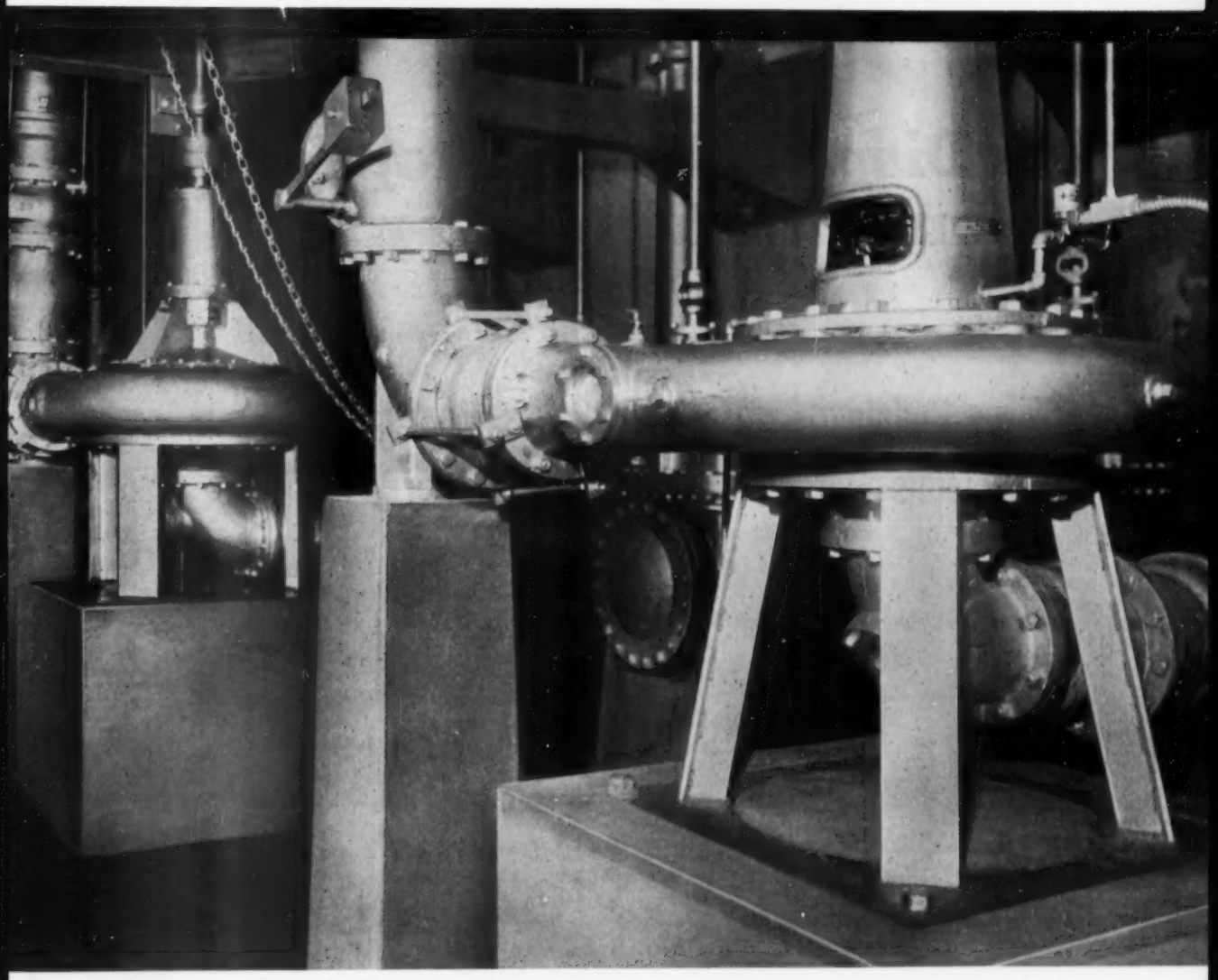
Bad accident! Corner 3rd and Main. The streets are blocked with stalled rush-hour traffic . . . but the officer still gets to the scene *fast.*

Why? Because he's mounted on a Harley-Davidson Solo. He can cut through traffic, turn on a dime, squeeze through narrow openings and, if necessary, ride down the sidewalk. In short, the mounted officer is the speediest means of meeting an emergency of law enforcement and traffic control available.

Get the facts from your Harley-Davidson dealer today. Or write direct to the Harley-Davidson Motor Company, Milwaukee 1, Wisconsin.



HARLEY-DAVIDSON POLICE MOTORCYCLES



YOU CAN RELY ON YOUR FAIRBANKS-MORSE FIELD ENGINEER . . .

For trash pumps that won't clog

Would you like to cut maintenance costs on your sewage trash pumps 25% . . . 50% . . . even eliminate maintenance costs due to clogging? Call in your Fairbanks-Morse Field Engineer . . . have him give you all the facts on the Fairbanks-Morse Bladeless Impeller Pump . . . the pump that can't clog.

Your Fairbanks-Morse Field Engineer is a pump application specialist . . . can help you select the non-clog trash pump or other sewage plant or water supply pumps that exactly fit your requirements. Because he can recommend from the complete Fairbanks-Morse line, he has a type and size that will solve your problems . . . efficiently and economically.

For complete details, mail the coupon. Fairbanks, Morse & Co., 3601 Kansas Ave., Kansas City, Kan.

FAIRBANKS-MORSE

a name worth remembering when you want the best

PUMPS • SCALES • DIESEL LOCOMOTIVES AND ENGINES • ELECTRICAL MACHINERY
RAIL CARS • HOME WATER SERVICE EQUIPMENT • MOWERS • MAGNETOS

FAIRBANKS, MORSE & CO.
Pump Sales Division
3601 Kansas Ave.,
Kansas City, Kansas

☐ Please send me literature on the Fairbanks-Morse Bladeless Impeller Non-Clog Trash Pump.
☐ Have a Fairbanks-Morse Field Engineer call.

Name _____
Title _____
Address _____
City _____ Zone ____ State _____

"Our Disposal Costs Dropped from $1.25 to 60¢ per ton"

Sanford City Manager W. E. Knowles tells this story:

Area-Type Bullclam Sanitary Fill Saves Money, Reclaims Marshy Wasteland for Sanford, Florida

ROOM FOR LOTS MORE. More than 11,000 tons of refuse is dumped at fillsite annually with the "One Man Sanitation Squad" easily keeping ahead of the haul trucks.

NO FLIES, NO FIRES. At the end of each shift, compacted refuse is covered with a 12-inch earth seal to kill fly larvae and prevent rodents from burrowing into the material.

MAGICAL TRANSFORMATION. Bullclam method of sanitary landfill changes this former marshy wasteland into valuable industrial site.

Here's what W. E. Knowles, City Manager, Sanford, Florida, has to say about his community's sanitary landfill.

"We built an acre of land from a marsh with refuse during our three months of operation. With only one man and the TD-14A INTERNATIONAL DROTT *Bullclam Shovel working at our fillsite, our disposal costs dropped from $1.25 to 60¢ per ton in the same period.*

"High water level in the marshland we're reclaiming makes it impractical to excavate a trench, so we're using the area-type sanitary landfill. The area is being built up six feet by having trucks deliver refuse to the selected area where it is spread, compacted and covered by our machine.

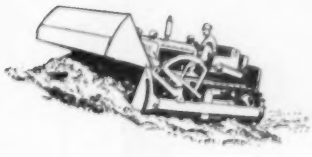
"There are no flies, rodents or wind-blown waste and it's much cheaper and better than our old incinerator method any way you want to figure it."

INTERNATIONAL DROTT Bullclam Shovels are the only units specially designed for all sanitary landfill operations. To learn how all the residents in your community can benefit, call your INTERNATIONAL Industrial Power Distributor today. He'll help you select a site and arrange a demonstration that will show your officials the savings you will get by putting a "One Man Sanitation Squad" to work.

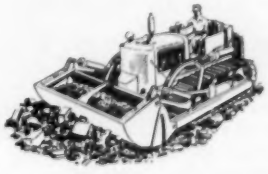
Remember, your INTERNATIONAL Industrial Power Distributor will call in a sanitary landfill expert to assist you in setting up a practical and money-saving sanitary landfill for your community. There is no charge for this service.

INTERNATIONAL HARVESTER COMPANY
CHICAGO 1, ILLINOIS
DROTT MANUFACTURING CORPORATION
MILWAUKEE 8, WISCONSIN

FIRM FOOTING. Refuse delivered to fillsite by City of Sanford sanitation trucks is spread and compacted effectively in marshland withminimum settling by TD-14A INTERNATIONAL DROTT Bullclam Shovel.

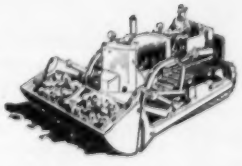


1. Prepares the site



2. Crushes and compacts refuse

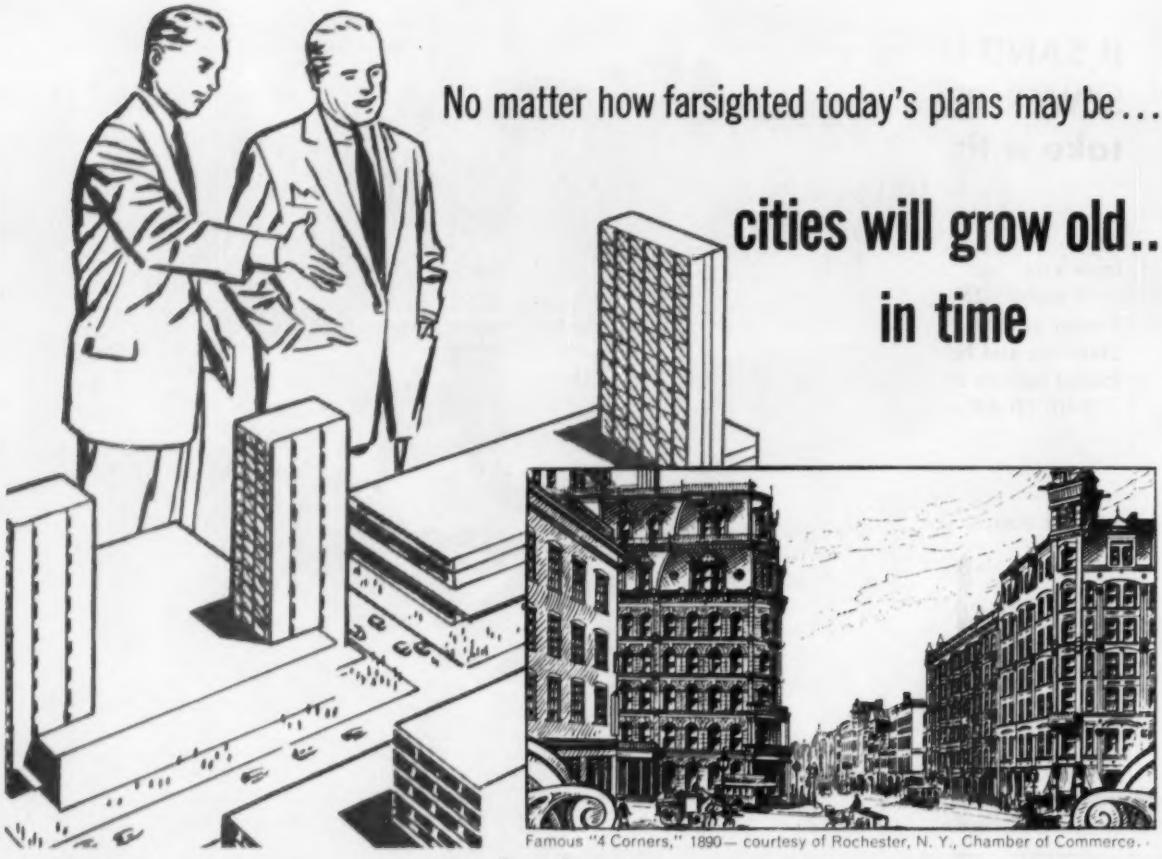
3. Transports and spreads earth cover



4. Grades and levels finished area

INTERNATIONAL HARVESTER

INTERNATIONAL DROTT



No matter how farsighted today's plans may be...

cities will grow old... in time

Famous "4 Corners," 1890— courtesy of Rochester, N. Y., Chamber of Commerce.

Your best insurance against obsolescence of your water system...

specify EDDY Valves and Hydrants *throughout*

No matter how far into the future your city planning is projected, Eddy's record testifies that Eddy Valves and Hydrants are your best long term investment. Eddy Valve Company's more than 100 years of dependable operation means that, today, you can get replacement parts for any Eddy Valve or Hydrant ever installed. And our ability to continue to do so is your assurance against future obsolescence of your valves and hydrants.

EDDY Bronze-Mounted HYDRANTS open smoothly *with* the pressure and close without water hammer. One man can easily remove all operating mechanism for inspection and repair. Positive drip action automatically drains the standpipe, safeguarding against freeze-ups. Stem held in place below hydrant valve means that there is no water loss due to a bent stem.

EDDY Bronze-Mounted GATE VALVES offer simplicity of design, trouble-free operation and enduring service. From the engineering drawing boards through all stages of manufacture, they are step by step a truly "finished" product of workmanship. These factors, added to personal experience, tell why progressive water works men have relied on Eddy for generations.

Eddy Hydrants and Valves are available with hub, flange or mechanical joint connections to fit any existing or planned installation.

Send today for full data on the complete line of Eddy Valves and Hydrants. No obligation.

EDDY VALVE COMPANY

A Subsidiary of James B. Clow & Sons

WATERFORD, NEW YORK

If SAND is your city's SEWER PROBLEM take a tip from FRESNO, CALIFORNIA

This sand pile is part of 15 cubic yards recently removed from a 438 foot section of 24" line in Fresno.

"Flexible" 25 h.p. Bucket Machines were chosen by Fresno as most of the pipes to be cleaned were of large diameter and because they will pull the largest fully-loaded buckets at speeds up to 125 feet per minute.

With 10 different models to choose from, "Flexible" provides a complete range of Bucket Machines to meet all budget problems.

Send for the Bucket Machine Catalog and the name of your nearest distributor.

FREE DEMONSTRATION INVITED

Flexible INC.

3786 DURANGO AVE., LOS ANGELES 34, CALIF.

(Distributors in Principal Cities)

AMERICA'S LARGEST LINE OF PIPE CLEANING TOOLS AND EQUIPMENT

It's True There are Other "Good" PIPE DETECTORS

and EACH ONE WILL PERFORM ALL THESE JOBS:

- Detect, trace and center pipes, cables, etc.
- Estimate their depth
- Separate parallel pipes, cables, etc.

Model 505 Pipe Detector

But... Do They Have ALL These "505" Features

1. ALUMINUM CASE shields the loops from outside interference and is light — durable — repairable.
2. BUILT-IN BATTERY TESTERS plus 67½ V batteries insure maximum service, more efficiency, more power.
3. QUICK-ACTION ALUMINUM HANDLE set up in seconds for one man operation.
4. LIFETIME GUARANTEE assuring reliable performance for the entire life of instrument.

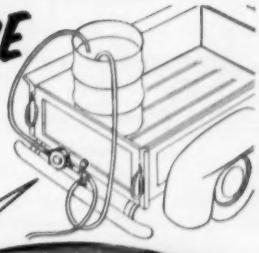
Also Available: Model 505-C Combination Pipe-Leak Detector

Get the complete "505" story — write Dept. 54

Detectron® The DETECTRON Corp.

5528 Vineland, North Hollywood, Calif.

the BUDGET-WISE Pump Buy



... a MUST for every municipal pick-up truck!

Many Uses Include:

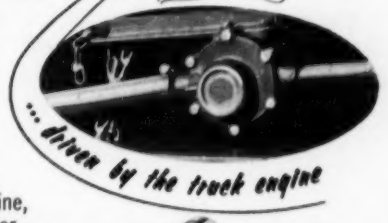
Fighting Grass and Spot Fires.

•

Spraying Trees and Parkways.

•

Pumping oil, gasoline, chemicals and water.



... driven by the truck engine

WATSON Tools TRUCK POWERED

Powered by Watson Rear Power Source

WA-60

CAPACITIES

13.5 gpm at 50 psi
12.5 gpm at 100 psi
6.0 gpm at 350 psi

LOW COST QUICK INSTALLATION

AC-7

H. S. WATSON COMPANY
1316 - 67th St., Emeryville, California

Please send information on Watson Truck Tools and name of your nearest distributor.

☐ UTILITY PUMP ☐ TRUCK CRANES
☐ REAR POWER SOURCE ☐ HAND WINCHES
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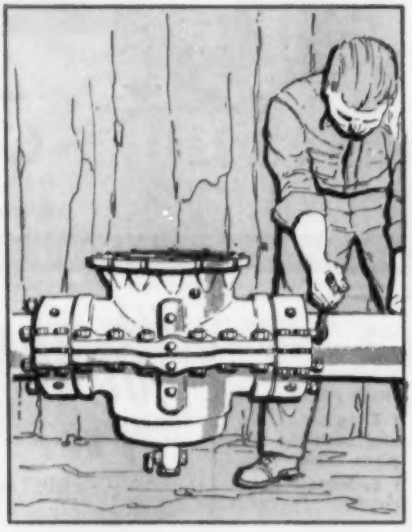
INSTALL CONTROL VALVES WITHOUT SHUTDOWN!

Now you can install control valves without shutting down even a small part of your city's water system. Inconvenience to customers and danger of fire is completely avoided by using Mueller Inserting Valves.

Mueller Inserting Valves may be installed in any existing line under pressure and, once installed, are operated like standard gate valves. In fact, the mechanism of Mueller Inserting Valves is identical to that of Mueller AWWA Gate Valves and repair parts are interchangeable.

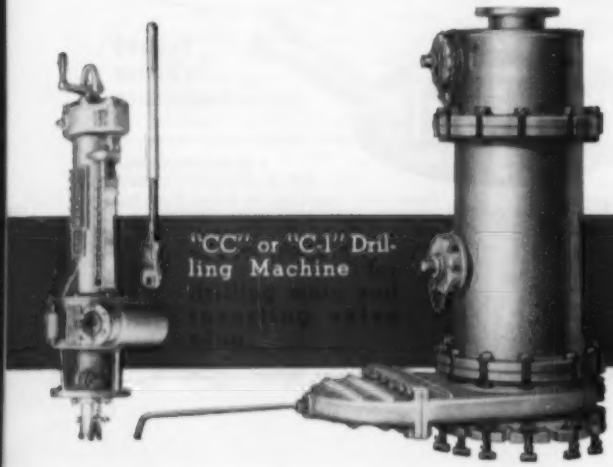
Follow this procedure to install . . .

STEP 1. BOLT SLEEVE TO MAIN.
Main is cleaned and sleeve halves are bolted together around main.



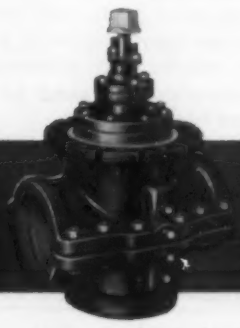
STEP 2. PREPARE SLEEVE.
Sleeve is calked and leaded to main in desired position and slide valve is attached.

STEP 3. MAKE CUT.
Section of main inside of sleeve is removed with Mueller "CC" or "C-1" Drilling Machine.



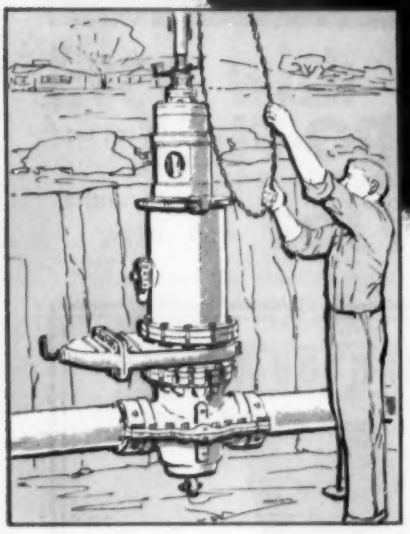
"CC" or "C-1" Drilling Machine

H-810 Basic Inserting Equipment

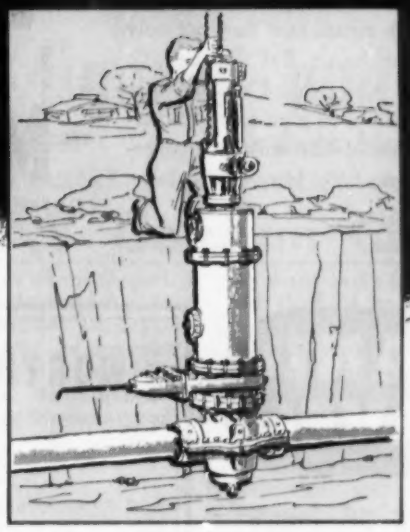


H-800 Inserting Valve

AND FIRE HAZARDS!



STEP 4. PREPARE VALVE PLUG.
Long adapter is bolted to slide valve and valve plug is readied for insertion into main.



STEP 5. INSERT VALVE PLUG.
"C-1" machine is fastened to valve plug to lower plug into place under pressure.

STEP 6. COMPLETE INSTALLATION.
Packing screws are tightened and lead is poured into top joint to seal valve plug in place.

Control Valves at vital points permit:

- Installation or repair of fire hydrants
- Isolation of small sections
- Extension of mains
- Modification of system . . . without extensive shutdown

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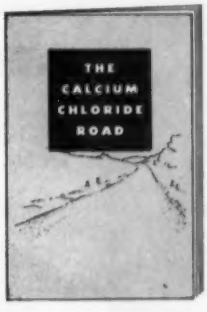

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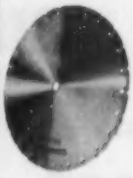

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Preferred for maximum footage at lowest cost-per-cut. Wide range of bond variations for maximum life under every condition! Ask also about the new Felker Abrasive Blades for cutting green concrete, where applicable.

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Big Beam Model 2ATW with storage battery and built-in charger that keeps battery fully charged at all times. Variety of models to choose from.

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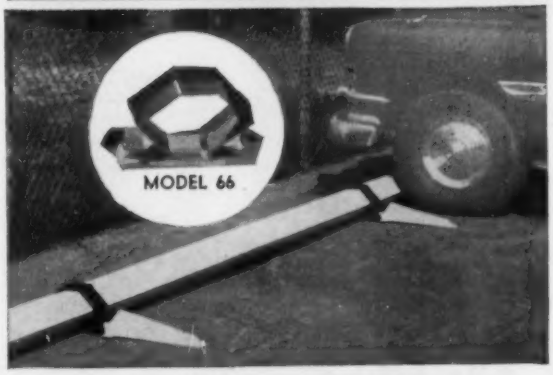
The **HARRIS-BARRIER** Way



Don't worry when the "Cowboys" try to "bulldog" this number. Extra strength cast brackets support 6 x 6 dimensional timbers and make Har-Bar's Model 66 the ideal barrier for commercial and truck use.

INSTALLATION—Simplicity itself; just line up and drive the new improved ground spikes. HAR-BAR installs on any surface; Black Top, Concrete, Macadam, Gravel, Sand or Cinders.

Give dimensions and shape of your parking area. Harris-Barrier engineers will prepare *your* engineering kit without obligation!

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Some Colectomatic-owning private contractors

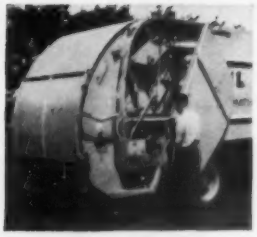
Algonquin Park, Illinois • Las Vegas, Nevada • Lake Geneva, Wisconsin • Madison, Wisconsin • Denver, Colorado • LaCrosse, Wisconsin

Heil Colectomatic owned by the City of Burbank, California, provides fast, economical rubbish and garbage pick-up service. Note the low, wide loading sill which

SOME OF THE NEW COLECTOMATIC FEATURES THEY LIKE

FULLY AUTOMATIC OPERATION — A touch of the lever starts the automatic loading-packing cycle. Only 3 hydraulic cylinders do all the work, compared to the usual 5 or 6 in other rear loading units. Maintenance problems and costs are slashed!

FAST "BULLDOZER" PACKING CYCLE — Completed in 23 seconds. Packing plate *rolls* refuse out of the hopper and into the body. Tons of pressure compact the maximum amount of material into the big body and the packing plate holds it there. No retainer plate is needed!



MOST ACCESSIBLE FOR SERVICE — Just open the sectional panels on both sides of the tailgate. The entire working mechanism is within easy reach from a standing position!

When a piece of equipment starts selling like hot cakes the minute it's introduced—and continues in demand month after month, from coast to coast—*it's proof positive* of the superior features that make Heil Colectomatics outstanding for fast, clean, economical refuse pick-up.

Heil Colectomatics are "made to order" for you! Every improved-design feature is the result of suggestions from municipal operating crews, inspectors, supervisors and private refuse hauling contractors . . . the men who know refuse collection best.

Ask for a demonstration of the Colectomatic in action; watch it zip through a regular pick-up route; see for yourself its easy, convenient safe operation; check on the low maintenance features. Call or write today to arrange a Colectomatic demonstration convenient to you.

SEE THE HEIL MOVIE, "Made to Order", describing every Colectomatic feature in full sound and color. Address requests for free use to The Heil Co., Body and Hoist Division, Milwaukee 1, Wis.

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AN OUTSTANDING NEW TEAM
for Ditching, Digging

INTRODUCING
the Allis-Chalmers WD-45 Wheel Tractor with Henry Backhoe

Whether it's digging ditches, trenches, culverts, footings or foundations, you'll find this team's power, mobility and versatility ideal for use on any dirt-moving job. Check the features that make this machine a big performer at low cost:

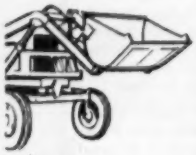
PLENTY OF POWER — for big-scale production. The WD-45 engine with POWER-CRATER design develops over 45 belt horsepower . . . to give you more power per dollar . . . more work capacity than other tractors of this type. Thousands already in use have given the WD-45 nationwide fame as a performance leader.

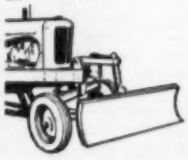
PLENTY OF WEIGHT — 5,325 lbs distributed right, give you the added traction and stability you need for tough, heavy digging and backfilling. It's a combination of a big, rugged wheel tractor and heavy-duty hoe to give years of continuous service.

MANY OPERATING FEATURES — let the operator do an efficient, thorough job in less time. With two-clutch control, the operator saves time because he can keep tractor in low gear while digging — can start and stop it on short moves with easy-to-reach hand clutch. The bucket, working like a giant hand, reaches out 12 ft, 8 in . . . digs 8 ft down . . . swings 160 degrees for wide area dumping. Backhoe assembly is all-steel, box-channel construction to take rough, hard use.

MANY SERVICE ADVANTAGES — will save you money. Engine features like exhaust valve rotators, removable cylinder liners, pressure lubrication give long life and lasting performance. Backhoe features, like replaceable bushings on all wear points, provide easy maintenance.

PLENTY OF VERSATILITY — keeps the WD-45 with backhoe busy all the time. The unit is mobile enough to reach any job, especially the hard-to-get-to places. With power-shift rear wheels, the tread can be adjusted in less than five minutes when extra stability is needed. Choose from six interchangeable buckets, 16 to 24-inch widths. Front-end loader and backfill blade attachments are available as optional equipment.





See the world-famous WD-45 with Henry Backhoe at your Allis-Chalmers industrial dealer, or write direct to the company for literature.

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Water is vital...

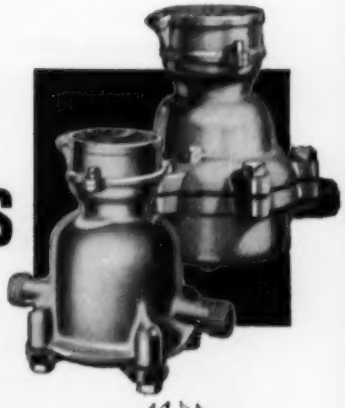
Badger meters conserve it better!

WITH more than 508-million pairs of shoes purchased last year, leather production is one of America's most vital industries. Yet, from the cleaning of hides to the final finishing of shoes, it takes far *more water than leather* . . . in tanning alone approximately 162 gallons of water per hide.

The Badger water meters used throughout the nation help conserve water for this need . . . just as they do for homes. They measure water accurately . . . provide a precise check on water usage and waste . . . make water departments more efficient and self-supporting.

As waterworks men everywhere verify, Badger meters do the job dependably . . . serve through the years with little or no attention.

Badger Water Meters



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"Measuring the water of the world for 50 years"

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MIGHT BE THE ONLY EASY ONE

The purchase of water meters involves more important economic factors than price alone. Actually, the bid price is only your down payment . . . and it could well be the only easy payment.

Any instrument loses its accuracy as it wears. After a few years . . . maybe only a few months . . . an improperly selected meter begins to lose revenue. In time, you'll also have high repair costs . . . or costly scrap-and-replace programs.

Avoid these high costs with Trident meters. Tridents retain accuracy longer . . . derive maximum revenue longer. Most important, you avoid high costs of obsolescence and repair. The most modern Trident parts fit the oldest Tridents you have. You actually modernize as you repair . . . with Trident.

When you consider all these economic factors you will quickly see why Trident meters earn more and cost less. Ask your neighbor . . . or ask us to supply verified evidence.

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257

This inviting residential-type building is actually one of Topeka's big floodwater pumping stations.

Don't Worry About the Sewage Pumps

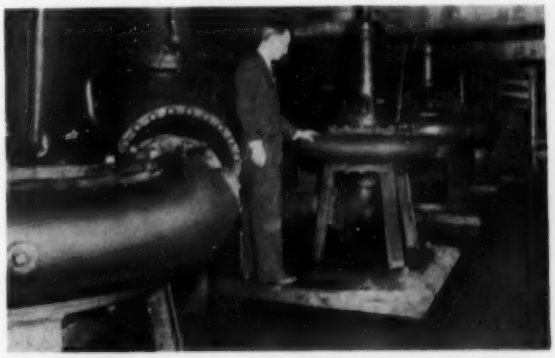
Topeka operates its sewerage system around four new and sixteen old pumping stations that have rolled up remarkable records of reliability

By D. B. KISSINGER
Engineer of Sewerage, Topeka, Kans.

LAST summer, the largest gathering of pump engineering talent that most of us ever will see assembled at Kansas City, Kans., to participate in a pump symposium at the dedication of the Fairbanks-Morse plant in that city. Among the experts on the panel was Professor Aladar Hollander, of the California Institute of Technology, who, incidentally, is a consultant for one of F-M's competitors. Nevertheless, Professor Hollander, who is Hungarian reared, Swiss trained, and has had German engineering experience, stated emphatically that the finest pumps in the world are built in the United States.

I haven't any way of knowing whether they are the finest or not. Occasionally, some cynic will tell you that they work all right except nighttimes, Sundays, and holidays. And I admit that when pumps decide to quit, they seem to pick inconvenient hours. But, so far as Topeka is concerned, if all our equipment worked as well as our pumps, we wouldn't have a worry in the world.

We are in the midst of a $3,000,000 sewerage expansion program to make our sewers adequate for our expanding population. When we finish, we will have



The Ash Street station—heart of Topeka's pumping system—utilizes four centrifugals with specially designed controls.

An inconspicuous manhole lid and vent are the only evidence that a sewage pumping station is in operation in this area.

20 pumping stations. Of these only four will be new, five will have been retired, and the remainder will have served for varying periods since 1928.

Prior to the current program, we had 25 pumping stations that have seen the kind of duty that you get only in Kansas. Most unforgettable was the 1951 flood when the weatherman threw away the record book and wrote a new one. The very least that we can say about that ordeal was that it seemed a pity that we had so much water on our hands and didn't really want it, while the arid Southwest didn't have it and needed it so badly.

Flooded Stations

All of our 11 major pumping stations were flooded unmercifully. But all we needed to do was to dismantle each pump and give it a good cleaning. One old pump that we needed badly was simply flushed and put back to work. It has been running smoothly ever since.

Another pump that served "beyond the call of duty" was a 1,200-gpm vertical, close-coupled unit at our Oakland station. We lowered it into the wet well by chain hoist, operating it while still suspended on the chain. Thus we were able to pump down the sewers in that area several days earlier than would have been possible by other means.

With the exception of two pump stations, all of our pumps are Fairbanks-Morse sewage and trash pumps of the nonclog type. Several feature the bladeless impeller that will handle fibrous material up to 25 times the size handled by the conventional-type impellers.

The nonclog design permits most of the pumps to operate without suction caps. At one time, all our pumps were capped and operators had a nasty, time-consuming job once each week to pull and clean them. We changed 16 of the pumps to the new design two years ago. In the first year of operation only one of the pumps larger than 4 inches clogged; the remainder behaved as well without the caps as they did with them.

Underground Lift Stations

Within recent years, the city has installed 11 underground sewage lift stations equipped with a total of 22 vertical, close-coupled F-M pumps. These lift stations have aided in the expansion of the sewerage system to suburban areas at a minimum construction cost. The stations are compact, fully automatic units manufactured by Smith & Loveless, Inc., of Kansas City, Mo. Each station is delivered as a factory-built product requiring only one or two days for installation. The pump station is a welded, watertight steel structure that has many interesting features: two vertical, close-coupled, nonclog sewage and trash pumps complete with motors; electrical control panel with circuit breakers; magnetic starting equipment; air purge liquid level controllers; lights; steel ladder; all pipe fittings and valves; sump pump; a motor-driven ventilator; and refrigeration-type dehumidifier which prevents condensation in the station.

The pump station on Gage Boulevard, in southwestern Topeka, is a typical unit. It contains double 4-inch vertical sewage and trash pumps, each delivering 500 gpm at a total dynamic head of 35 feet. Leakage from the stuffing boxes is eliminated by the use of double mechanical seals which are kept dead tight by high-pressure fluid from a specially designed hydraulic system. Many design features of the pump station reduce ordinary maintenance to a minimum and require only a daily check by maintenance personnel.

The heart of our pumping system is the main lift station at Ash Street, built in 1928. This picks up sewage contributed by 85,000 people, and pumps it through a 30-inch force main to the treatment plant. Today it is equipped with four vertical F-M sewage and trash pumps able to lift more than 21,200 gpm. Variable-speed, slip-ring motors governed through a 12-step automatic control system, enables three of these pumps to hold the level in the wet well to 36-inch differential. A fourth pump, rated at more than 10,000 gpm, will pump overflow to the river. In case of excessively rainy weather, the floodgates remain open and all the sewage and storm water goes to the river.

The big 10,000-gpm pump, one of the oldest units in the system, operates against a head of 47½ feet. It has a 12-inch discharge line and is driven through a solid 35-foot vertical shaft by a 150-hp, 450-rpm motor.

Another interesting pump at the station is a 4,700-gpm unit, 10 inches in size and operating against a 46-foot head. This pump is identical in every respect to the one it replaced with the single exception of its impeller design which increased its capacity by 1,000

At the Quincy station, a gas-engine standby, powering a propeller-type pump, protects against electric power failures.

gpm. The pump will pass 8-inch spheres without clogging.

The two remaining pumps at the station are rated at 3,000 gpm and 3,500 gpm, respectively, and operate against a head of 45 feet. The combined capacity of these four pumps exceeds the 14-mgd capacity of the treatment plant and is more than sufficient to handle the increased flow expected from the Crane Street interceptor when the present expansion program is completed. At that time, the 42-inch reinforced-concrete interceptor, lined with vitrified clay blocks, will be increased from its present length of about 1 mile to almost 4 miles. A new interceptor with branches extending far into the south and southwest portions of the city will be constructed for a distance of about 10½ miles from the station. The completion of this interceptor will be a great forward step in sanitation for our city.

The program will enlarge several of the pumping stations. For example, in our Central Park Station, we now use two pumps, one rated at 375 and the other at 600 gpm. The smaller will be replaced by a 1,400-gpm unit and the existing 8-inch force main will be paralleled with a 16-inch line.

At the treatment plant itself, we have two relatively new nonclog pumps, one of 750 and the other of 1,200 gpm capacity, both operating against a head of 45 feet. The smaller is a 4-inch, horizontal-shaft type, while the larger is the same vertical close-coupled unit that we suspended on a chain for emergency service during the 1951 flood.

No description of our system would be complete without mentioning the two residence-type pumping stations. These are housed in buildings of red brick, gabled construction of the duplex-type "homes" complete with dormers and landscaping.

One of these "residences" actually is a high-capacity flood station, equipped with three propeller-type F-M pumps, rated at 4,500, 7,500, and 15,000 gpm, respectively. These discharge directly and quietly into a tributary of the Kansas River.

Another rather unusual flood station, located on the south bank of the Kansas River, pumps directly through the levee when the floodgates are closed. This station's pumping requirements are different enough to require distinctive types of pumps.

One is a 16-inch, oil-lubricated turbine pump, rated at 5,000 gpm. When it operates, a solenoid oiler feeds a predetermined quantity of oil into the top of the shaft tube, providing efficient, trouble-free lubrication for all working parts. As every one knows, the turbine-type pump requires a wonderfully small amount of working space for the amount of work it does. The second is a 24-inch propeller pump with a capacity of 15,000 gpm, driven through a universal right-angle gear and a twin-disc clutch by a 180-hp Waukesha engine. This big fellow gives us the emergency capacity we need in case of a general power failure.

Emergency Pump

We have one other rather unusual emergency pump. This is a 3-inch, 200-gpm semiportable bladeless-impeller unit, close-coupled and able to operate against a head of 24 feet. We don't use it often, but when we do, we use it anywhere.

Topeka's experience in the past 26 years is a tribute to the durability and flexibility of the pumping equipment that the industry supplies to us today. I feel confident that Professor Hollander would say that it is living evidence that he is right when he says that the world's best pumps are made here in the United States.

Topeka's master plan was prepared by Black and Veatch, consulting engineers, of Kansas City, Mo. Detailed plans and specifications have been prepared by Servis, Van Doren and Hazard, engineers of Topeka, Kans.

The work is being completed under the general direction of Commissioner C. Madison Williams, City Engineer Abram Pratt, and the author, who is serving as engineer of sewerage.

The swinging-table type of airless blast cleaner is ready to go to work.

New method brings greater efficiency to the meter repair shop

Abrasive Blasts Clean Water Meters

By EUGENE F. ANDERSON
Special Engineer
American Wheelabrator & Equipment Corporation
Mishawaka, Ind.

THE practice of cleaning and reconditioning water meters is changing. Today, the trend is toward the abrasive-blast system instead of the old-fashioned chemical bath because it is faster, cheaper, more thorough, and affords improved working conditions for the men.

Most water-works men would like to see each meter in the system cleaned and checked for accuracy at least once every five to ten years. Consequently, many have adopted regular programs that bring a fixed number of meters to the shop for reconditioning each season.

Cleaning performs two chief functions: it removes material detrimental to the accuracy of the meter; and it permits better inspection of a meter's parts. Chemical cleaning requires dipping of the meter in acid, rinsing it, and buffing it on a wire wheel. Under less severe conditions, the meters may be cleaned by washing with soap and water. However, they may require scrubbing with a wire brush and then washing in soft water to prevent recoating the meter parts with lime scale. The acid dip is unpleasant and pits the metal. The acid soaks into the pores to such an extent that corrosion, in the form of copper sulphate deposits, occurs almost immediately after the meter is put back into service.

Blast cleaning eliminates these undesirable effects. When properly performed, it will not remove as much metal from the meter parts as will an acid dip. However, it does a thorough job of removing corrosion and other contaminants. It leaves a matte-type surface that makes the meters look like new.

Two Types of Blast Cleaning

The blast-cleaning process employs abrasive particles hurled at high velocity onto the unit to be cleaned. The operation is performed within metal cabinets of various sizes. A metallic-type of abrasive has generally proved best since it does not induce so much wear and tear on the blasting equipment as sand or certain other nonmetallic materials.

Operators in meter-reconditioning shops are using either of two types of blasting equipment—air blast or airless blast. Our company manufactures both types.

The air-blasting equipment employs compressed air to force the abrasive against the metal to be cleansed. The abrasive forms a cone and cleans only a small area at a time. The operator, his hands gloved, holds the equipment through armholes in the front of the cabinet, and manipulates the abrasive hose to clean the equipment manually. It is somewhat slower than the airless process and is suitable for the smaller shops.

Airless blasting, on the other hand, makes use of automatic work conveyors. The operator does not have to position the equipment in the blast. Rotating wheels located in the roof of the cabinet throw the abrasive in a fan-shaped blast pattern and clean the entire surface, freeing the operator for other work.

When compressed air is available, the initial cost of air-blasting equipment is less than that of airless blasting. Without compressed air at

This is the air-blast cabinet used by the Mishawaka (Ind.) Water Department.

hand, the total cost of the equipment will be about the same. However, the latter type requires less labor and makes more efficient use of power.

The water works in Mishawaka, Ind., is one of those that uses the air-blast cabinet alone. An experienced operator can clean a complete meter assembly in four minutes, devoting half the time to the case and the remainder to the working parts. The abrasive is a G-200 grit thrown at an air pressure of 60 pounds per square inch. The cabinet is replacing an acid dip, and the operators report a more thoroughly cleaned meter with practically no loss of metal.

Airless Blast

In contrast, the airless-blasting machine is currently in use in the shop of a private meter-reconditioning company in a large eastern city. This machine has an endless rubber belt that continually draws the meter assemblies up from the bottom of the chamber and very gently cascades them over the top of the load. Here they are subject to the full cleaning action of the centrifugally-thrown abrasive. The interior volume of this chamber is 2 cubic feet.

Main casings, frost bottoms, and register boxes may be blast-cleaned in large groups. To make the cleaning more efficient, they are water-rinsed of sludge and heavy dirt. A typical load of 20 units of the ⅝-inch size requires 15 minutes' cleaning time, unless they are very dirty or covered with paint. An operator can blast-clean 320 of the ⅝-inch meters in an 8-hour day with ease. The ⅝-, ¾-, and 1-inch meters can be mixed together, but the 1½ and 2-inch meters should be run separately, two to a load. Tumbling does not damage even the most vulnerable areas. Such critical locations as threads on the spuds or the register cup show no alteration after blasting.

Operating Costs Decreased

At one time, this eastern meter-repair shop used hot alkali solution for cleaning, followed by rinsing and buffing. Summertime working conditions were unpleasant because it was a very warm wet job. A batch of 24 casings required four hours of chemical treatment, and additional time for rinsing and buffing. Now working conditions are cool and comfortable, and meters flow through the shop at a regular rate. Operating cost—including outlay for power, grit, and maintenance—for cleaning each meter has been decreased 6 cents. The cost of chemical cleaning was calculated at 8 cents per meter, but airless blasting slashed it to only 2 cents.

Both Types Used

Cities Supply Company, Inc., of Sumter, S. C., has used both airless-blast and air-blast procedures for almost 10 years. This company provides meter-repair and testing service for more than 700 municipalities. About 95% of this work is performed in the airless unit, and 5% in the air-blast cleaner.

The blast cleaner has, mounted on its door, a plain circular work table that measures 48 inches in diameter. When the door is open, the work table automatically moves out into the room for loading or unloading. When the door is closed, the table moves into the blast zone and revolves beneath the abrasive shower. The meters to be cleaned are loaded on the table, given a three-minute blast, then turned over for the second three-minute blast. A typical load will consist of thirty ⅝-inch meters. This short period of cleaning makes it possible for meters to be dismantled in about one-fourth the time formerly required. The inside casings are then put back into the machine for a three-minute blast. This makes a total cleaning time of nine minutes per meter.

The air-blast cabinet at this company is used for cleaning the chambers, registers, and discs. The combination of the two is adequate to handle any type of meter that the company may encounter.

Abrasive-blast cleaning, as indicated, is a trend that is growing. Its growth is accompanied by greater efficiency and lower cost in the meter reconditioning work.

The Mishawaka water works cleans even small delicate parts with its air-blast unit.

The endless rubber belt of the airless blast machine also is finding use.

This leaf clean up crew finds that the intake of the blower sucks leaves from the gutter quickly and easily.

By J. L. MacLEOD
City Engineer
Bangor, Maine

Bangor, Maine, takes the high labor cost out of leaf gathering each fall

Mechanical Leaf Removal

EACH autumn, Bangor, like a great many other cities in the northern tier of states, faces the task of removing the city's fallen leaves. The compact section of the city includes some 65 miles of streets, all lined with stately elms and rock maples that give our residential areas great dignity and beauty. However, each fall when these trees shed their leaves, we must clean them from the streets and gutters to insure proper drainage as well as to provide safety and cleanliness.

During the years when we had to depend on hand labor, this removal program was slow and costly. It normally required a crew of 20 men, four trailers, and two industrial-type wheel tractors, working from mid-October to the middle of December to complete the job.

Consequently, we were tremendously interested when we learned that a mechanical leaf loader could lighten our work load. In 1947, we purchased our first mechanical leaf loader from the Deephouse Equipment Company, of Berlin, Conn. This unit performed so successfully that we acquired a second unit in 1948, and a third last October.

Mechanical Loading

We have mounted these units on 5-yard steel dump trucks. The steel dump bodies have been fitted with special wooden boxes that extend to the end of the steel tailgate which has been dropped to the level of the truck body. The wooden frames are constructed of 1-inch matched spruce lumber, reinforced at the tops and ends with 2-inch by 1-inch hardwood strips. The tops are covered with 1-inch mesh chicken wire that is topped with open-weave burlap.

This combination of chicken wire and burlap retains the leaves and dust blown into the body by the leaf loader and also allows the air from the suction fan to escape through the burlap. The top of the back end of the box is hinged so that the entire area of the box is free to discharge the leaves when the truck body is elevated. The capacity of each box is about 15 cubic yards.

The normal crew for the operation of one unit includes two men who rake the leaves from the sidewalk and grass area into a windrow in the gutter. Two additional men and the truck operator follow to pick up the leaves.

Before mechanical loaders were used we could not schedule our leaf-collection program until practically all the leaves had fallen. Hand methods are not flexible enough to permit jumping from one area to another. Some trees start shedding their leaves the latter part of September while other trees do not shed until the middle or latter part of October. This meant the leaves which fell early in the fall would have to lay in the gutters until the organized clean-up could be started. This delay in starting our program often resulted in failure to complete the clean-up since weather conditions—extreme cold and snow—often called a halt to leaf removal in early December.

The mechanical-type leaf loader, because of its extreme flexibility, permits us to begin work with one unit early in the fall. Two men and the machine move from area to area to pick up the early fall of leaves. When shedding is complete, the systematic program proceeds with all the units working.

At this point, we publish clean-up schedules in the daily newspapers to encourage property owners to rake and pile their leaves in the gutter in advance of the clean-up. This procedure gives our city a much more attractive appearance and eliminates the flying of leaves from private property through all the streets after they have been cleaned.

Since we have adopted the mechanical loaders, we have been able to complete leaf removal each year by the first of December, and thus avoid work during extreme cold or the need to suspend our program completely. In addition, we have cut expenditures considerably.

Before mechanical units were adopted, the fall clean-up of leaves cost from $8,000 to $8,500 each season. The total cost for 1953 was $5,790 and cost for 1954 will not exceed $5,800. These savings are made possible by the greater speed and efficiency of mechanical methods, and despite rising costs of municipal activities. Savings of such sums are particularly appealing to "down-Easters," trained in traditional Yankee thrift and resourcefulness.

Heavy-Duty Beach Work

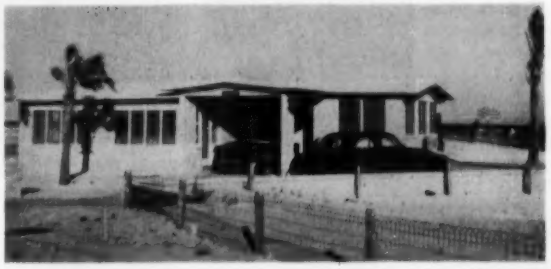
This power-packed, big tired, Tournatractor scoops up a bladeful of the "whitest sand in the world." Big dozers do not often have the chance of working in such pleasant surroundings as shown above.

BEACH erosion control is no work for a weakling, as municipal engineers in any coastal city will attest. In the area around Pensacola, Fla., the shores are being built up and new, useful land area is being created by the bruising power of big, rubber-tired bulldozers.

The shores benefitting from this muscular massage surround Santa Rosa Island, a 46-mile stretch of beach connected to Pensacola by an automobile bridge. The sand here is unusually white, and the bulldozers are borrowing sand from the beach itself to build up the balance of the area so that it will be suitable for permanent housing. LeTourneau-Westinghouse Tournatractors are doing the job.

Homes on the improved area remain under the jurisdiction of the Santa Rosa Island Authority. Island homeowners do not buy lots, but secure them from the Authority on a 99-year lease.

Rubber-tired bulldozers make Santa Rosa Island, Fla., more habitable



New homes are rising on property created by bulldozers.

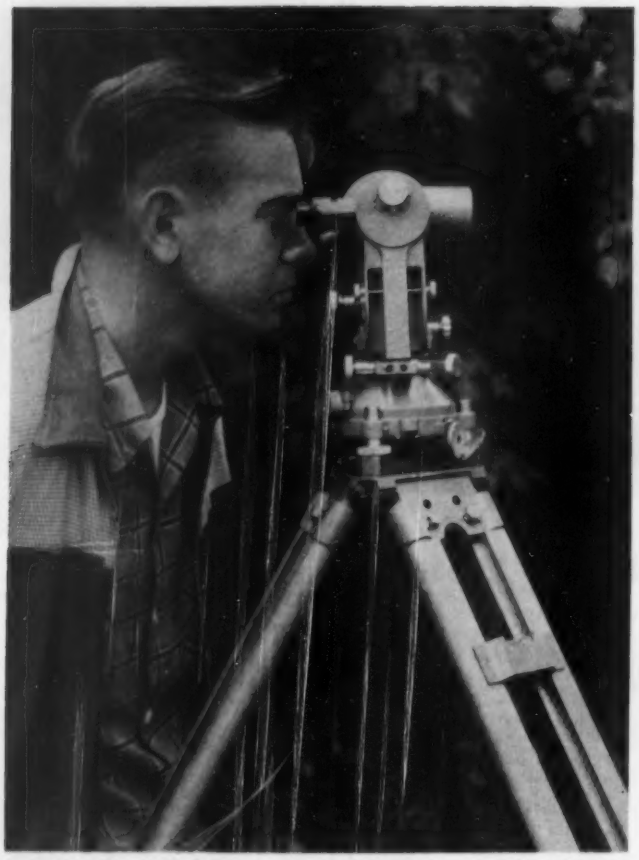
What Could be More Efficient?

PARK greens, lawns, tennis courts, and even parking areas in Bridgeport, Conn., greeted the spring season in top form this year because of an adept and hardy power rake. Not only has Park Superintendent George A. Mallett found his rake to be the answer to the high cost of hand labor, he claims that he'd hate to think of maintaining the 1,500 acres that are his responsibility without it.

A Multipurpose Tool

The unit, a York rake, Model RE, manufactured by the York Modern Corporation, of Unadilla, N. Y., performs all the jobs of harrowing, grading after plowing, spreading fill, and even finish grading and seeding. The city is now using it to spread fill and gravel on several new parking areas, one of which is 15 acres.

Bridgeport's rake gathers together stones, roots, and debris, grades and mulches, spreads topsoil, and even bulldozes.



The theodolite helps instrument man George Quinn's work to go fast.

City Surveying Becomes Simplified

By FRANCIS P. RYAN
City Engineer
Northampton, Mass.

Northampton, Mass., finds that new types of surveying equipment provide cost-cutting short cuts while maintaining precision accuracy

MOST of us who have done any surveying at all have accepted the conventional transit and level in the same way that we have the multiplication table. Until a few years ago, our fathers and possibly grandfathers could have walked into our surveying offices and recognized these instruments as the same types that they had used 35 to 40 years previously. An old precision surveying instrument was revered in the same way that a violinist does a Stradivarius, and no one even remotely considered any changes.

It comes as something of a shock to us, therefore, to find that we can take a little pocket-sized instrument and actually do a better job more cheaply than we could with the old equipment. This sort of "shock treatment" is something that a city engineer, trying to stretch an inflexible municipal budget, likes to experience.

We like to set up survey control nets throughout the city. From this net, we reference in street bounds, property corners, and structures. We insist on a minimum accuracy of 1:5,000 for assessors and aerial photographic control work. With our new equipment, this accuracy exceeds 1:20,000.

Instead of a transit, we use a Wild T-2 theodolite. In place of a steel tape, we use a Wild invar subtense bar. The theodolite is disarmingly small; an experienced surveyor has to overcome a feeling of disdain and lack of confidence in the equipment. He has no trouble once

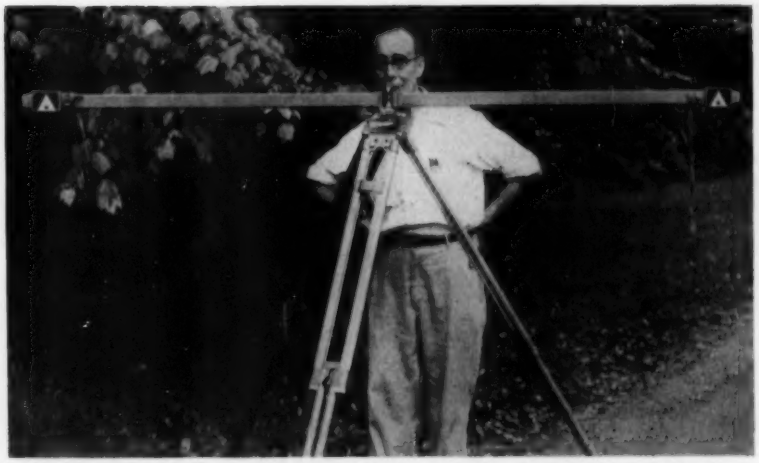
he has begun to use the equipment.

The theodolite has no plum bob to be swung about by every passing breeze; instead the surveyor centers the instrument over the reference point optically by means of a right-angled lens. Characteristic of the more accurate instruments, it has a telescope that inverts its image.

Subtense Bar

The subtense bar permits one to measure horizontal distances without chaining. This bar is very accurately prepared with a nonexpanding invar metal wire protected by a metal tube, and is mounted on a tripod horizontally over the point to be measured. The bar is exactly 2 meters long. We also are supplied with two targets to be mounted on tripods with optical means of centering precisely over the reference point. These targets can be supplied with artificial light for night survey work if desired.

In practice, the rod man places the tripod used for a backsight over the reference point and mounts the bar on it in a horizontal position. The instrument man then reads the angle created by the two-meter bar and repeats his reading with the telescope reversed. The rod man then replaces the bar with the target and goes to the forward point, mounting the bar on a second tripod. The instrument man can then read his angle of traverse and also his subtended angle to determine the distance while the rod man returns to pick up the target and tripod at the backsight.



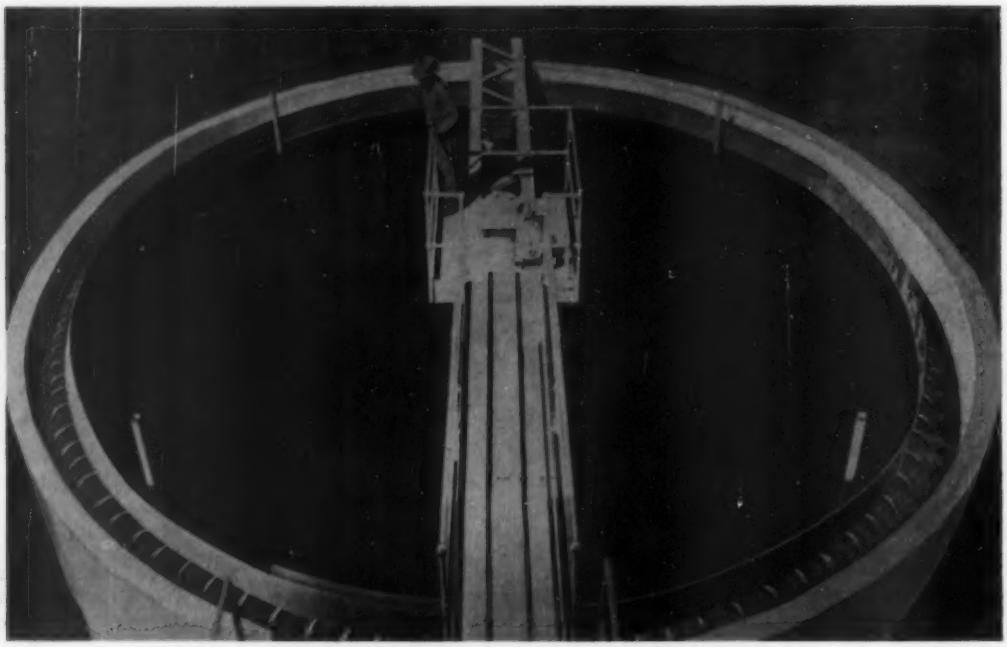
Rod man Charman mounts the subtense bar horizontally to read horizontal distances.

The instrument man translates the angle measured on the subtense bar into horizontal distance without need for slope correction by using a handy pocket table. He keeps the sights under 400 feet to maintain the desired accuracy.

To reference in the street boundaries, property corners, and structures, we use a Wild right-angled prism. This is a small instrument about the size of a hand level, accurately prepared so that it turns the line of vision exactly 90°. Using this and a cloth tape, we can locate these data rapidly and accurately enough for assessors' maps.

Our use of the equipment thus far has indicated that we can replace a six-man survey crew with two men and accomplish three times the work in a given period. We estimate that we have saved about three-quarters of the purchase price last summer in man-hours alone.

The entire operation, with short sights for camera range: (left) target tripod; (center) theodolite; (right) subtense bar.



Malverne, Ark., uses this little circular upflow unit in its treatment plant.

How Upflow Coagulation Works

. . . and what it can do to improve water treatment

By JOHN S. KNEALE
The Permutit Company
New York, N. Y.

COAGULATION and settling to remove turbidity and color from water are no new innovations, but have been practiced for centuries. Some 300 years ago, Navarette, a Spanish missionary, traveling on the Yellow River in China, saw and clearly described coagulation of the muddy river water with alum as follows:

> **Afterwards we observed a secret in nature, till then unknown to us, which was that the waterman and servants filled a jar of this water, putting in a little alum, they shaked about the jar; then letting it settle two hours, it became as clear and fair as could be wished, and was so delicate, that it far exceeded the other we had provided, though it was extraordinarily good.**

From this description, we can see that the early water purification men used what we term the batch process. True, the size of the vessel might range from a small bucket to a large tank. But the process was the same — a batch of water was drawn into the vessel; a dose of alum was added; the mixture was stirred and allowed to settle for several hours. It was then either filtered or used "as is."

Later, when continuous processes were introduced, the water flowed slowly through a settling tank after being dosed with alum. The feeding of the alum was rather haphazard. Often the feeding device consisted simply of a bag of alum hung at the entrance to the basin or tank.

As for the settling tanks, engineers once assumed that if a tank had, for example, an eight-hour detention period, the coagulated water would dutifully take eight hours to pass through it. However, when some skeptical engineers began to test them, they found that short-circuiting was very common and that the actual detention periods were only a fraction of the estimated periods. Ever since then, designers have been arguing about the proper shape of the settling tank to insure that the water actually will be delayed long enough to permit the coagulated material to settle out.

Recirculation Attempted

Later, observers noted, that when previously precipitated sludge was mixed with the water as it was being treated, the coagulation and settling

would be much improved. So the engineers tried to recirculate the sludge, unsuccessfully because the recirculation pumps disintegrated and dispersed part of the recirculated sludge, making the particles so small that they refused to settle easily. Thus they aggravated the very condition they were trying to remedy.

In developing the Permutit Precipitator, Charles H. Spaulding bypassed these difficulties by making the water flow upward through a suspended blanket of sludge previously formed. The first equipment that he used consisted of a large stemless funnel in a glass jar that was equipped with an agitator. The flow of water was downward through the jar where the chemical was fed and mixed with the water by the agitator. It then flowed upward through the funnel where it formed an undulating blanket of sludge that helped clarify the water as it passed through.

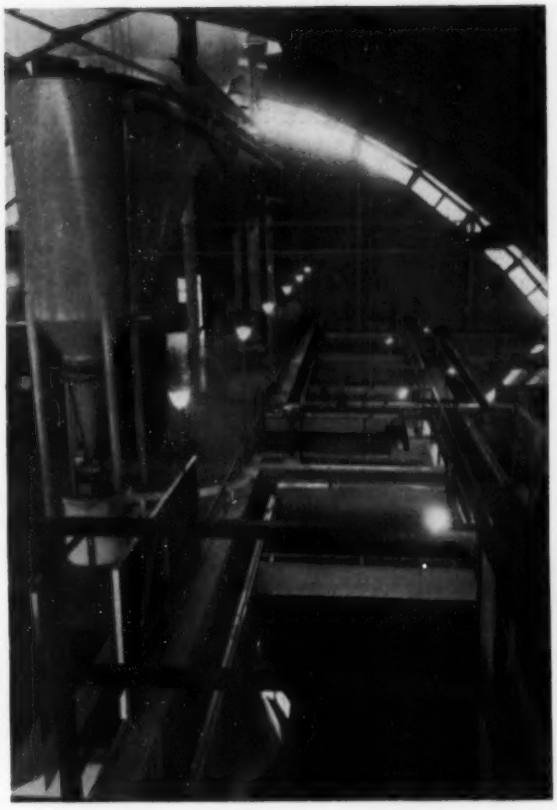
In designing the full-sized equipment, Mr. Spaulding achieved the same result and cut the height in half by, in effect, cutting the funnel in half and placing the inverted lower half in the upper half.

The Permutit Precipitator consists basically of a tank divided into two sections. The outer tank should provide approximately one hour of detention and can be almost any shape — conical, cylindrical, square, or rectangular.

The internal parts divide this tank into two zones, one for mixing and the other for upward filtration and separation of the clear water from the sludge. The general shape of the internal baffle can best be pictured as an inverted funnel with the water flowing in the narrow and out the wide end, thus dividing the tank to provide two gradually expanding sections.

The original formation of the floc particle takes place in the upper mixing zone in immediate contact with floc that was previously formed. Hence, the newly formed floc particles are already larger than those formed by a conventional-type unit inasmuch as they have "plated out" on and combined with some old floc. But these particles are not yet through growing because they still will come into intimate contact with and combine with many other floc particles before they have left the mixing zone and passed through the sludge blanket.

In the mixing zone there are innumerable eddy currents created by the rotating agitator imparting an upward velocity to the sludge particles and the downward movement of the turbidity-bearing water, thus insuring intimate mixing throughout the entire mixing zone. During the downward passage of the water through it, the gradually increasing area of the mixing zone permits reduction of velocity and degree of agitation insuring growth of the floc particle to a very large size.



Rantoul, Ill., uses an upflow type of unit, built to a rectangular design.

At the bottom of the mixing zone, the water passes through a restricted port designed to provide uniform distribution over the entire bottom of the sludge filter zone. The water has now made a 360° turn and will rise through the sludge blanket.

Sludge Blanket

The sludge blanket or sludge filter zone is, like the mixing zone, a gradually expanding section that provides gradually decreasing velocities. As the upward velocity decreases, it

The Rantoul plant is housed in a refreshingly different type of building.

reaches a level at which it will no longer suspend the floc particle and a plane of demarcation becomes clearly visible above which is the clean, clear water.

The clear water continues to rise, still in an expanding section, until it reaches the collection system at the surface of the unit. The collection system, a series of flumes with submerged orifices, further insures uniform flow throughout the entire unit. This is because the use of submerged orifices provides a greater degree of accuracy of collection than is possible with flat, continuous, or V-notched weirs, since the head over the weirs is so very low that the slightest inaccuracy in leveling creates a large percentage error in flow.

The floc in the sludge blanket, having reached a point where the water will no longer suspend it, begins to settle. Still coming in contact with sludge from the mixing zone, the floc continues to increase in weight and to drop lower in the blanket.

Sludge Concentration

On the outer side of the Precipitator is the sludge concentrator created by the restricted port. This is the only quiescent zone in the Precipitator. Here the sludge collects and concentrates so that it may be blown off to disposal. The sludge concentrator section is located immediately opposite the skirt edge and is symmetrically located about the design point. Sludge collection is uniform throughout the entire concentrator section, achieved by means of orifices drilled in the sludge-collecting piping and symmetrical design of the discharge manifold.

The sludge discharge is controlled automatically by any one of three methods, all adjustable. First, by simple timers, blowing down for a given period at set intervals. Second, meter-controlled, blowing down for a given period when a certain quantity of water has passed through the unit. Third, through a photoelectric system, blowing down for a given period when the top of the blanket has reached a predetermined plane in the unit. This system takes a continuous sample from an adjustable sampling line permitting the operator to select the blanket level best suited for his operations.

The elevation of the plane of disengagement is not necessarily static in any unit. The level of the top of the blanket is determined by the quantity of sludge being formed and the rate of flow through the water.

The agitator serves several functions. First and foremost, it insures adequate mixing of the water with the chemicals and existing sludge. Secondly, by sweeping the bottom of the unit, it keeps the heavy sludge or other material from settling and not passing to the blowoff system. Thirdly, with each pass of the agitator blade, a forward wave of pressure is exerted, forcing some sludge through the restricted port. Following the blade is a suction wave drawing sludge back through the port and into the mixing zone, creating a very effective though gentle sludge recirculation to avoid breaking the floc.

Turbidity

Although the detention time is only approximately one hour, the completeness of treatment results in effluents having 5 to 10 ppm turbidity consistently, even though the influent turbidities may be as high as 2,500 ppm. This completeness of treatment is effected by keeping all the water in active, intimate contact with the high sludge concentration for approximately 40 minutes since all the water must pass through all the blanket before it can reach the clear water zone. Short circuiting is next to impossible.

This latter feature makes the unit especially effective for color removal since the degree of color reduction is a direct function of the time of contact between the color and the adsorbing sludge. Units reducing colors as high as 400 to an effluent color of 10 have been installed.

The Precipitator is made in several styles, but all use the same basic principles. The vertical units are designed symmetrically about the center point, and the horizontal unit about the center line, insuring at all times uniform distribution and collection of water and uniform collection of the sludge.

Thus, you can see the Precipitator meets the requirements set up for a good pretreatment unit. It is automatic, easy to operate, able to meet changing conditions, economical to install since it needs to be large enough to hold the water for just one hour instead of the four hours required by other methods. Its effective utilization of coagulants makes it economical to operate and able to produce consistently good results, since all the water is in intimate contact with the sludge for a long period of time.

One word of caution, it is only a machine and cannot do anything by itself. One must still apply the proper chemical in the proper proportion to obtain good results.

For many industrial uses, the effluent of the Precipitator can be used without further treatment since an average turbidity of 5 to 10 ppm is satisfactory. However, municipal drinking water supplies require a higher degree of clarity. In such cases, the effluent is passed through filters. The low turbidity means that the filters will have long runs and will require wash water. Both these are factors that help keep operating costs low.

918 Students Entered Planning Essay Contest

THE Miami City Planning Board has announced the winners of its essay contest for High School students of Dade County, Fla., on the subject "Benefits of Long-Range Comprehensive City Planning." They are:

First:
William Marks—Miami Beach High School.

Second:
Bob Goetz—Miami Edison High School.

Third:
Michael Rassel—Miami Jackson High School.

Fourth:
Arlene Levitt—Miami High School.

Fifth:
Mary Clark—Booker T. Washington High School.

The best of the 918 essays originally written were selected by authorized high school teachers for submission to the board of judges. This board consisted of Arthur Griffith of the *Miami Herald*, Verne Williams of the *Miami Daily News*, and George F. Emery, planning consultant to the planning board.

In addition to receiving $50 in cash, the first-prize winner read his essay at the award ceremony, held on April 30 at the Bayfront Park Public Library, at which Gerald Green, planning board chairman, presided.

The other prizes awarded ranged from a $50 government bond to a $10 gift certificate, and all were donated by civic-minded individuals or business firms.

FRANK F. STEARNS
Director-Secretary
Miami City Planning Board

The two graders spread the oil-stabilized mat over the street preparatory to rolling.

Richfield's Streets and Sewers Collide

. . . but a durable, low-cost street surfacing program solves the problem

RICHFIELD, MINN., fast-growing suburb of Minneapolis and St. Paul, and one of the winners of last year's All-America City award, has the same sort of street annoyance that bothers other cities. No sooner is a street surfaced so that it is attractive and smooth riding than someone proceeds to slice it up with trenches.

In the past six years, Richfield's population has almost doubled, so that about 30,000 persons now live in the village. Consequently, last year, the village found it necessary to install approximately 55 miles of sanitary sewer laterals on streets that had been brought to a firm, improved, all-weather condition by an asphalt-paving program. This construction required Village Engineer Egil Wefald to go back and resurface these streets, thus adding materially to his street-improvement program. In all, he resurfaced 1,216,179 square yards of streets at an average cost of 11 cents per square yard.

To do the work, he uses his village-owned graders—two new Adams, three Caterpillars, and one Galion—to scarify the sandy subsoil to a depth of 2 inches. He then places SC-2 cutback asphalt on the windrowed material with a Gunnison 1,250-gallon distributor carried on a FWD truck, or with a Rosco distributor on a Mack truck. The asphalt is applied at a rate of 1.6 gallons per square yard. A Seaman Pulvi-Mixer then processes the asphalt and soil to a smooth, homogeneous mix which the graders spread across the street. A Welco multiwheeled rubber-tired roller compacts the surface.

A self-propelled Seaman Pulvi-Mixer processes windrowed soil before it is combined with the asphalt to form a smooth mix.

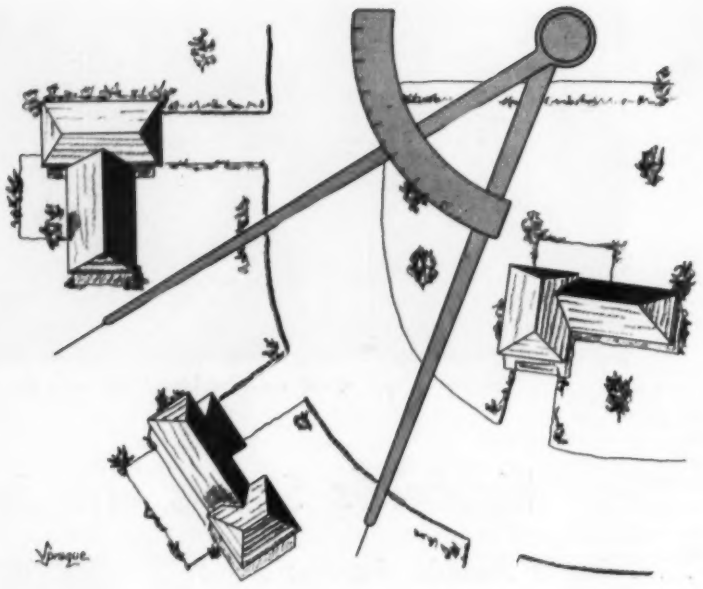
The 1955 program calls for the same amount of resurfacing, but will see the completion of the sewer program. Mr. Wefald then plans to place a more permanent surfacing over this oil-mixed base and hopes that future sewer and street construction will be scheduled so that neither program will conflict.

Standby Power on Wheels

GRIDLEY, CALIF. (population 3,100), is always ready to meet emergency power failures by quickly swinging into action its trailer-mounted electric generator. The unit is a 35,000-watt Onan gasoline-powered generator that already has seen extensive service. Not long ago, a fire in the southern part of town put out the lights for about three hours. The generator came to the rescue. The city has another similar unit installed as a permanent standby source of power at the sewage-treatment plant.

Gridley's Utility Superintendent Joe Handley checks his emergency power plant so that it is ready to use.

Road Design, Block Design, Lot Design for Neighborhood Subdivisions*



By EUGENE R. MARTINI
Landscape Architect
Atlanta, Ga.

RESIDENTIAL subdivisions comprise about half of the area of a community. How they are designed establishes for many decades, even centuries, the basic pattern of land use.

Our present discussion is limited to subdivisions up to 150 acres in size. Beyond that, we get into some major problems of town planning. We would be concerned with heavy traffic through the property. We would be concerned with various types of land use. We would have area-wide or community-wide school and recreation problems.

The term *subdivision design* is so general that we cannot discuss it without breaking it down into its constituent parts. We can discuss road design, block design, and lot design.

Road Design

The prototypes of our modern roads were the Indian paths and wagon trails of long years ago. Because they were not hard surfaced, they had to be on high ground. Generally, the roads followed ridges so that storm water would drain away and they could be used the year around—even through wet and thawing periods.

Our modern thoroughfares are primarily for high-speed traffic between points relatively far apart. Grades are kept at 4% or less to facilitate trucking and to minimize problems of sight clearance at crests of hills. Where feasible, the alignment parallels the contours of the land to minimize grading.

The Depressed Street

Subdivision roads, on the other hand, are generally depressed (all other factors being equal) to take drainage from the lots and to facilitate design of the sanitary sewer system. The depressed street has an esthetic value in that a view up toward a house sets it off to best advantage and generally makes it more readily saleable. Again, I must say, all other things being equal.

In subdivisions, roads should be designed to discourage through traffic and to facilitate marginal access. They are primarily for access to individual lots and drives.

High embankments and "V" cut ditches are to be avoided. Grades can range from 8% to 12%, and on occasion grades of 15% are justified. Generally, it is best to breast a grade with a subdivision road so that the houses on each side will sit nicely across from each other and the awkward high lot-low lot appearance be avoided.

Naturally, in extreme cases, compromises must be found, for it is necessary to balance many factors. For example, driveway grades should not exceed 14%, and extreme differences between elevations on adjoining lots must be avoided. Wide houses on narrow lots leave little room for grading. Retaining walls on lot lines become an important cost factor, unless lot frontages can be sacrificed to make lots wider on steep grades. Under FHA and VA regulations in some states, driveways exceeding 6% must be surfaced. Attention must be given to all of these factors.

In plan, the subdivision streets should provide for convenient circulation of traffic from the major approach, or approaches, to the "back end" of the property. In large subdivisions, minor residential streets should flow to collector streets which, in turn, will carry traffic conveniently to thoroughfares on the margins of the neighborhood. Consideration must also be given to secondary traffic flow in other directions; e. g., to a school, or a swimming pool, or

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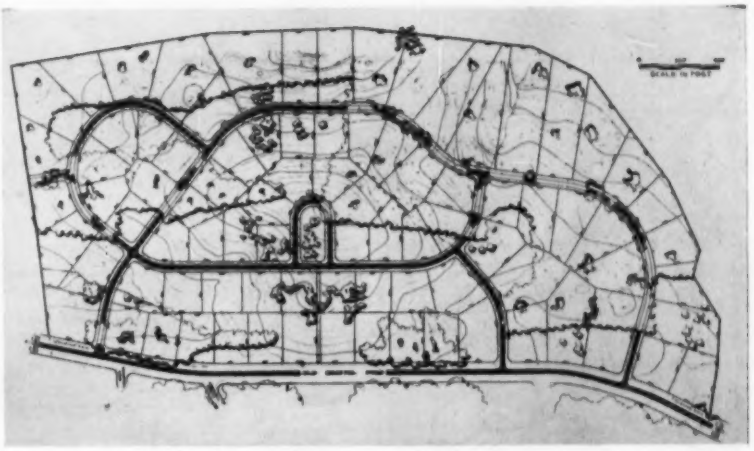
* Part of a paper delivered at the Surveying and Mapping Short Course, Georgia Institute of Technology.

a shopping center that might be on the side away from the main approach.

Extremely curvilinear plans, especially those of geometric or circular pattern, should not be introduced without reason. On very flat land, straight streets and the absence of grades can create a monotonous and drab neighborhood. In these cases, slight curves can "break" long straight sight lines and discourage speeding traffic. In the Atlanta area, curves are in abundance—and I am talking about road curves. The topography usually requires them.

Maximum grades have been touched on above. In selecting lengths of vertical curves for crests of hills, use those that give a sight distance of 150 feet. Maximum speeds in subdivisions must be held to 25 or 30 miles an hour. Stopping distances are therefore short compared to those on highways. Remember that in subdivisions, speed should be discouraged — not encouraged. Other design standards—such as the use of 3-way intersections in preference to 4, the avoidance of acute angled intersections, and many more — have been recommended for 20 years by the FHA and are so well known as not to need elaboration here.



Although fully one-half of the land in this subdivision lies on slopes of 15% or more and one-quarter has slopes of over 20%, the entire project has been carefully designed so that the roadways follow the contour lines as much as possible thus avoiding steep road grades. There are 9,500 feet of roadway in the subdivision.

Block Design

Blocks are naturally the result of road design. But again, the two are interdependent and are separated here only for the sake of clinical analysis. Blocks below 600 feet in length are not economical, and blocks more than 1,200 feet in length are not generally desirable. In fact, they are prohibited in most subdivision regulations. This maximum limit may be rescinded not too many years from now when legs will have become unnecessary appendages and all trips around the block are made by car.

Some localities require cross walks at or near centers of long blocks. In my opinion, such a requirement, if arbitrarily applied, invites trouble. Unless the crosswalks are fenced and paved, they become a nuisance and a hazard. They will introduce a maintenance problem and may create a policing problem. In some instances, they will require expensive steps or excessive drainage structures. Unless essential to concentrated pedestrian traffic, with "desire lines" to a school or shopping center, crosswalks should be avoided.

It should be unnecessary to add that odd-shaped blocks are uneconomical, in that they usually waste land and street frontage. On the other hand, some variation in block depth is often essential on irregular topography, and may enhance marketability of the property.

Lot Design

The total purpose of a subdivision is to provide lots that will sell. These lots must therefore be buildable lots, not just lines on a piece of paper. Not only must each contain a building site; it must also have pedestrian and vehicular access from the road. Utility service to, and drainage from, the house site must be considered.

Lot lines should be perpendicular or radial to street lines. This arrangement is normal and tends to minimize friction between owners in cases where no boundary fences are installed. The side lot lines will then be approximately parallel to the ends of the house in a typical development—they will have a feeling of being "square with the world."

Corner lots present a problem. They should be normally 20 to 30 feet wider, so that a uniform setback can be maintained on both streets.

Other lots in the end of blocks need special attention to avoid the appearance of gaping holes or missing teeth in an otherwise uniform treatment. An "open" block end, especially where one occurs across from facing lots, should be avoided.

Lot size is naturally a matter of great concern. The controlling factors are those of price range, local regulations, and extreme topographical conditions. All other things being equal, the lot should be well proportioned, the width from ½ to ⅔ of the depth. People now realize that the long narrow "bowling alleys" of old subdivisions are of little value. The "back end" is too far away to be used. People want less yard to maintain, greater width perhaps, but less depth.

Lot width should ideally be set from house width—but this is a possibility only in operative-builder developments, where the range of house width is known in advance. The minimum distance between houses should be 20 feet *and this is minimum;* anything closer mixes the neighbors cooking odors, and even their family squabbles.

Side Setback Lines

In subdivisions with lots for sale, the community peace can be maintained by side setback lines. These may be shown on a plat but are more usually a part of the protective covenants or zoning ordinances. Once a standard side line setback and a standard lot width are determined, one must consider the exceptions.

Lots on the outside of a curve have less street frontage; the width at the building line is controlling. Lots on the inside of a curve must have more frontage; assurance of adequate space at the building site is essential. Lots backing to a wide utility easement can be shallow, as the easement normally provides space for planting and other uses. Lots siding on utility easements, those adjacent to curbs, or those adjacent to crosswalks must normally be wider. As in any business, the exceptions out-number the rules.

In discussing covenants, we encroach upon the legal profession, but unless the developer's attorney is ex-

"Please sir, save the trees."

perienced in the housing field, a double check by the subdivision designer is essential. Ideally, all protective covenants should be correlated with the plat design. Please note that I have called them protective covenants. The idea that covenants are restricted is a thing of the past.

Any design which does not recognize the controlling factors of utilities and drainage is "no kind of good." *In fact, drainage is of prime importance.*

Sanitary sewer systems properly belong within the street rights-of-way where they need no dedicated easements for cross lot or rear lot mains. In a majority of cases, then, the maximum and minimum grades of sewers may have a bearing on road grades. In critical cases they may even dictate road locations to a major degree. Remember that sewer grades can sometimes be too steep, but this situation can often be remedied with drop manholes. Water and gas service have little effect on design, and need not be discussed here.

Electric and telephone service are normally along street rights-of-way. In this location, they are an eyesore unless screened by trees or "lost" against a background of woods. Our residential streets are now almost service streets, for they provide not only owner access to the houses, but also garbage collection and deliveries. Houses now have their living rooms and living terraces to the rear for privacy. The old FHA ideal of rear utility easements is probably a thing of the past. They always gave a designer trouble in proper alignment of rear lot lines, particularly at block ends.

Save the Trees

In closing these remarks on design, I wish to emphasis a very important matter. *Every effort should be made to preserve existing trees.* If their beauty is not sufficient excuse for their being, then consider this—a single tree adds tremendously to the marketability of a lot. It not only enhances the livability of a house, but actually may increase its value by $200 to $300 above that of barren sites. Ten years from now, when all houses may have air-conditioning units, the umbrella-like shade of a tree may reduce operating costs by one-half.

I have seen many a beautiful oak die a lingering death from a careless swipe of a bulldozer blade. Even an unnecessary hack of a machete has assured the end of a beautiful pine. A little thought on our part in this regard will help to maintain our towns as delightful residential communities.

40-Hour Week Disappearing in Connecticut Towns

THE 40-hour work week for public employees is being edged out by an even shorter week in a growing number of Connecticut cities and towns. This is revealed in a recently completed survey of fringe benefits in municipalities in that state having over 5,000 residents. Of the 54 communities that answered the survey, 36 reported that their salaried employees worked from 30 to 38 hours a week. Eleven towns have 40-hour work weeks, while only three work longer than 40 hours.

Some Exceptions

The survey also found that hourly workers and police and firemen put in generally longer weeks. However, the trend is toward a shorter schedule for these workers also. As the report notes, "A direct determinant of the work week length is the policy concerning Saturday work. Twenty-eight towns report that their offices are closed Saturday. One is open with a skeleton staff; the remainder of the town and city offices are open half a day, with either full or skeleton staffs."

Other Policies Covered

In addition to work-week policies, the report covers vacation policies; group insurance, hospitalization, and retirement plans; sick leave; special leave; and allowances for uniforms. The report is titled "Fringe Benefits for Public Employees in Connecticut Towns and Cities of over 5,000 Population" and was written by Edwin A. Gere, Jr.

Copies of the report are available from the Institute of Public Service, University of Connecticut, Storrs, Conn., at 25 cents per copy.

National Shade Tree Conference to be in August

THE 31st annual meeting of the National Shade Tree Conference will be held in Santa Barbara, Calif., from August 1-5. Topics of discussion will include the problems of shade tree maintenance along streetsides; arboriculture as an industry; the training of young trees; and the equipment, standards, and ethics of practicing arborists. Information concerning reservations for the conference can be obtained from Mr. Jack Denise, Santa Barbara Chamber of Commerce, P. O. Box 299, Santa Barbara, Calif.

Knowing Who Owns What After Nuclear Attack

By LEWIS ORGEL
Register, New York County
New York, N. Y.

ON April 18, 1955, a $400,000 microfilming project got under way in two of New York City's Halls of Records—in Brooklyn (Kings County) and in Manhattan (New York County). The contract with Recordak Corporation calls for microfilming some 38,000,000 pages of records of the city's 845,000 parcels of real-estate property valued at $19,000,000,000.

We have undertaken this program to protect the citizens of New York City. Should a "modern" bomb fall here, and the records be destroyed, the chaos could be permanent without some way of proving ownership. Microfilming is the way. Deeds, mortgages, satisfactions of mortgages, alphabetical indexes and block indexes, and records of chattel mortgages are being microfilmed.

1,400 New Libri Per Year

The original records are in bound volumes, called libri, of which there are 64,000 in the four counties. Each libri weighs 19 pounds, or 608 tons collectively. These bound volumes of 500 to 700 pages each are multiplying at the annual rate of 500 books each for Kings County and Queens County, and 200 books each in New York and Bronx counties. As long ago as April 1951, the National Records Management Council under the direction of the Mayor's Committee on Management Survey reported that except for The Bronx, the county offices of the City Register already lacked space for housing the real property libri.

In New York County, the real-estate property records are indexed in three ways: alphabetically; by block; and by lot-block. The records run back to 1654 (1654-1666, the Dutch period) and occupy 44,000 square feet of floor space in the four boroughs or counties.

The microfilms of all these records can be stored in 50 file cabinets occupying 200 square feet of space. This sounds like a dazzling saving in space, and would be if we could dispense with the original records and use the positive microfilms for daily office use. It may be that eventually we shall be able to do that efficiently through the use of flat microfilm.

Not a Replacement for Books

Microfilms in roll form cannot replace books for current use. While 90% of all title searches cover the last 40 to 60 years, and not one or two hundred years, getting out even 20 rolls and placing each in the reader and running it to the correct lo-

Lewis Orgel, registrar of New York County, holds a roll of 35mm microfilm which contains about 1,400 pages, or the equivalent of the three volumes shown. This roll is but one of the many that have been and will be processed under New York City's microfilm program. In the photo above, 10 table-top Recordak Micro-File machines are at work photographing records in the Borough of Manhattan.

cation and refilming the rolls would not be a time saver. In our office we often have 40 to 50 searchers at a time.

We do plan, however, to store in the City Records Center, 238 William Street, the records of the first 200 years. Positive microfilm will be used for searching in that early chronological area. The books for the last 75 years will be kept on hand for the usual searching.

The 38,000,000 pages comprising the complete record are photographed two to the 35mm microfilm frame. Thus, there will be about 19,000,000 exposures. The work is going on in two county offices at a time. It started in Manhattan and Brooklyn and next will be performed in The Bronx and Queens. Completion of the project is expected within a maximum period of 2½ years.

Any Town Can Do It

This New York City microfilming project is of interest to other towns only because the size of the project points up its necessity. New York wouldn't be making 500 miles of film of one type of record if it could avoid it.

How to do it in other cities can quickly be told. One camera and operator can microfilm 10 libri a week or 500 per year. That is how each County Register will keep records to date. Each county will own (or already does) a microfilmer. If your town is in a target area—and civil defense says no area in the country is invulnerable to nuclear attack—this is the way to get your tax roll back in business if needed.

Reviving the Central Business District

I stand full-square on the constructive belief that the centralized business section is growing and will continue to expand.

These were the final words of an address by Charles G. Nichols, president and general manager of The G. M. McKelvey Company, Youngstown, Ohio, at the Construction and Civic Development Luncheon on "The City of Tomorrow," which was an important feature of the 43rd Annual Meeting of the Chamber of Commerce of the United States, held in Washington, D. C., May 1-4, 1955.

The urgent need for more downtown parking space and the relation of that problem to present-day shipping habits was discussed in some detail by Mr. Nichols. "To increase parking space," he concluded, "would be relatively simple if the downtown worker, who is the all-day parker, was required to park his car in perimeter parking lots. This would free downtown parking areas for the transient shopper who comes into the central business district for daily shopping. This is one sound recommendation we can make to relieve the congested parking situations found in most cities."

Local Transportation Systems

While recognizing the fact that the public transit system is an essential part of any central business district, Mr. Nichols pointed out that local transportation systems themselves may account for congestion in the downtown area by poor time schedules, and by using buses, either gas or electric, that are too large for the downtown streets.

"Is there any reason," he asked (among other questions), "why a bus has to be so high and so wide and take up so much space? Have bus companies done enough research to explore how to streamline operations, speed up service, to find ways and means to take up less space and still carry the same number of passengers? Have they taken a realistic look at how best to handle the peak loads?"

New City Emerges from Old

"A concrete conclusion to my ideas of 'Downtown' America," said Mr. Nichols, "was very fittingly expressed in a recent address by Mr. F. Stuart Fitzpatrick, Manager of the Construction and Civic Development Department, Chamber of Commerce of the United States. Speaking on the title "The New City Emerges From the Old," Mr. Fitzpatrick had this to say:

"'Just what kind of a community we will create remains to be seen. We can either interfere with it through misunderstanding it, or we can help it emerge through understanding what is taking place.

"'In any case it will emerge. And it will have downtown as well as "out town" shopping centers. It will have downtown living in good neighborhoods and it will have "out town" living in good neighborhoods. And both "out town" and downtown will be integrated parts of the same community.

"'The downtown is here to stay, but it must adjust itself to the insistent demand for more space and integrate itself in the community as a whole.'"

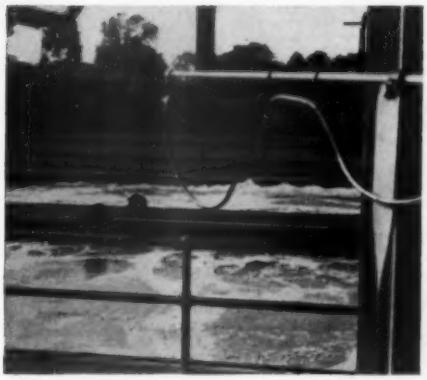
410 Cities Annex Land in 1954

A TOTAL of 410 cities expanded their areas by annexing surrounding lands during 1954. It was the third straight year that the number of annexing cities passed the 400 mark. Collectively, the cities absorbed over 325 square miles, thus surpassing the total amount of annexed territory gained in each of the last two years. This and other information on annexation activity last year is given in an article in the 1955 *Municipal Year Book*, just published by the International City Managers' Association, 1313 E. 60th St., Chicago 37, Ill.

Large Annexations

A notable feature of the 1954 annexation picture was the number of cities that made large annexations. Kansas City, Mo., annexed 48 square miles. El Paso, Texas, took in 27 square miles. Palm Springs, Calif., annexed 15 square miles; and Corpus Christi, Texas, acquired 14 square miles. Three other cities — San Diego, Calif.; Norfolk, Va.; and Richmond, Calif. — each annexed more than 10 square miles during the past year.

Despite their growing number, annexation attempts are still surrounded by torturous legal procedures, says the author of the article, John C. Bollens, of the University of California at Los Angeles. As an example, Professor Bollens cites the fact that "often the residents of the urban fringe have the controlling factor" because they have the exclusive right to start the process or they can vote down any annexation proposal at an election in which votes from the fringe area are separated from those cast by the would-be annexing city.



(Left) A small gun sprays a counteracting vapor over the area of the aeration basin in an activated-sludge plant to neutralize the foul odors. (Right) Here, another point—the primary settling tank—that frequently needs odor counteraction is treated.

Odor Counteraction

Sewage-treatment plants adopt new ways to keep sewers and plants odor-free all the time

ODOR counteraction means introducing a chemical in the form of a vapor to neutralize other chemical vapors that create offensive odors. The neutralizing vapor alone may have an identifying odor, but when combined with the offending odor, both become odorless. Examples of counteracting agents on odors are cedarwood for rubber; rubber for wax; wax for tolu balsam; and paraffin for wax.

Problems of Masking Odors

Odor masking, on the other hand, means that a strong odor will override a weaker one. Thus a strong, pleasant odor will cover a weaker, offensive type. However, this method presents difficulties since all people do not think that the same odors are pleasant. For example, among a test group asked to identify an odor that they thought added "freshness to the air," one man chose smoked herring for the unconscious reason that he had spent his childhood summer playing near fish wharves. A woman unconsciously chose creosote because her early playground had been near a yard where a railroad had treated its ties with creosote. It is also true that most people will object to any odor, pleasant or unpleasant, when it lingers over a period of time.

These significant points were explained by Francis M. McGlannan, of Airkem, Inc., New York, N. Y., at the recent Maryland-Delaware Water and Sewage Works Association, held at Ocean City, Md. Use of the counteraction type of odor control is growing, he stated, in the sewerage field.

Points of odor problems in the sewage-treatment plants where counteraction is particularly effective are open grit-handling areas; screens; sedimentation basins; aeration tanks; trickling filters; sludge-drying beds; sewer vents, manholes, and lift stations. Counteracting agents mix with the odorous air stream by molecular dispersion and air movements.

Clean, compressed air vaporizes the liquid odor counteractant and introduces it into the air through a special gun at the rate of approximately 2 cubic feet per minute. A drum, located conveniently nearby, provides storage for the counteractant. The operation is automatic and, once installed, requires little

(Continued on page 162)

(Left) One of the several guns used to neutralize odors emanating from a sludge lagoon. (Right) A gun applies the counteracting vapor to the interior of a sewer line.

Redevelopment by Agreement

Tucson has demonstrated that a city and a group of its interested property owners can transform and redevelop—through mutual agreement and voluntary cooperation—a run-down and nearly vacant residential subdivision for urgently needed industrial use

By FRED EMERY
Mayor (May 1, 1951-1955)
Tucson, Ariz.

AT 8:00 p.m., April 29, 1955, the Mayor and Council of the City of Tucson passed in rapid-fire succession the following:

1. Resolution authorizing execution of a deed in trust for city properties in the Cherry-Campbell Redevelopment area.
2. Resolution authorizing execution of a deed in trust for streets and alleys.
3. Resolution authorizing the execution of an agreement and approval of beneficiary of declaration of trust.
4. Ordinance vacating all streets and alleys.
5. Approval of the final plat of Cherry-Campbell Redevelopment Plan.

To the casual observer, it appeared as though nothing more than routine business was being transacted, although the more attentive student of government might have wondered at the precision and speed of action.

Simple as these motions may have seemed, they culminated three years of continuous effort in the field of redevelopment. In short, the Mayor and Council rendered final public action to implement the Cherry-Campbell Redevelopment Plan. This was accomplished by a process without known precedent.

Adverse Physical Conditions

The area in question is a sparsely developed 70-acre tract of land roughly three city blocks in width and five in length, located in the geographical center of the urban area. This is only a part of the potential 200-acre Park-Campbell Redevelopment Area.

More adverse physical conditions could hardly have been assigned to the land than were already inherent in its make up.

The street and alley pattern was of the archaic gridiron system, superimposed on topographic conditions that absolutely rebelled against its layout since the inception of these subdivisions platted between the years 1906 and 1938. Only 16 scattered residences had been built in all of those years out of a possible 243 lots.

The area is diagonally dissected by four tributary arroyos converging at the north end into the Tucson Arroyo, a heavy contributor to downtown flood problems. These arroyos are very well-defined washes with natural vertical walls, varying in width to a final cross section of 9 feet by 40 feet.

The 70 acres are bounded by major streets to the east and west, a high school athletic field to the north, and a major street and the main line of the Southern Pacific Railroad to the south. At the southwest corner lies the important Cherry Avenue grade crossing. The 22nd Street crossing, one of the heaviest traveled in Tucson (over 13,000 vehicles on an average day), lies at the southeast corner. Campbell Avenue and 22nd Street are almost 14 miles in length, intersecting at the center of the urban area, dividing Tucson into four quadrants. To add insult to injury, these two routes intersect at the exact center of the Southern Pacific Railroad main line. The area is zoned residential and, as a final clincher, subdivision restrictions insured the same.

Meeting the Needs of Business and Industry

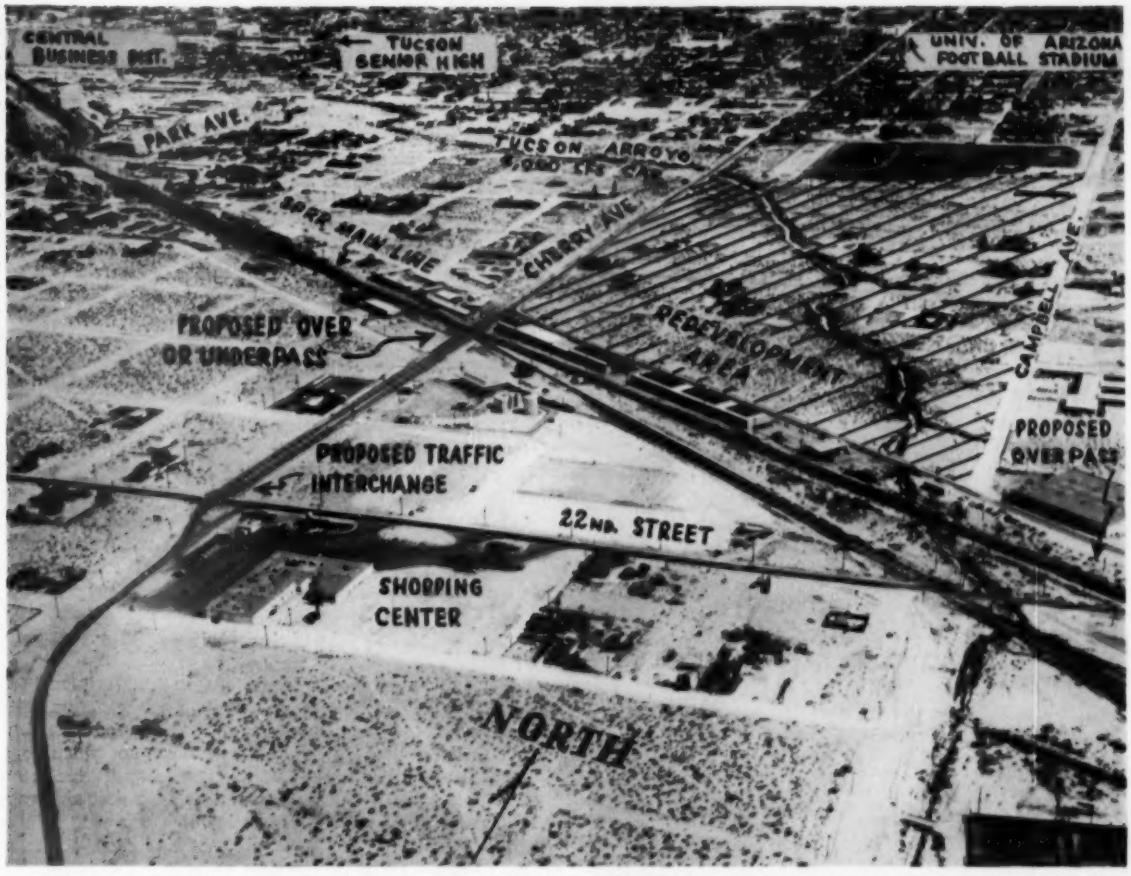
In 1949, sporadic requests for heavy business and industrial zoning commenced; a natural consequence of the fact that the city was fast running out of industrial areas having only 13% of these left vacant. This percentage, although at first glance it might seem sufficient, was scattered in many small and diversified ownerships offering very little to the research laboratory and other attractive industries of today that Tucson has very actively campaigned for.

Survey Recommended

Early in 1952, Tom Vinson, a local realtor, petitioned for an industrial zone for the entire area. The City Planning and Zoning Commission, under the chairmanship of M. H. Starkweather, a leading citizen and architect, recognized that there was more to the problem than a change of zone and so reported to the Mayor and Council.

Andre M. Faure, the director of the City-County Planning Department, suggested in meeting that the Mayor and Council retain the firm of Philip H. Elwood and Guy S. Greene, Land Planners, to make a comprehensive survey of almost a square mile of blighted land, whose center lies less than a mile and a half from City Hall, called the Park-Campbell Redevelopment Area. Included in his recommendations was a more precise study of part of this area, Cherry-Campbell, and to make recommendations for its ultimate redevelopment, providing in addition to good industrial sites, for all community needs in the form of major street openings and widenings, preservation of natural drainageways, and grade separations.

Following study, report and recommendations were made by the consultants and were supplemented by a Planning Department comparative engineering analysis that weighed two entirely different grade separations schemes. Mr. Faure and John



Tucson's 70-acre redevelopment area (shown hatched in the above photograph) will provide important new areas for business and industrial expansion. Located on the outskirts of Tucson's developed area, yet adjacent to a major traffic artery and a main line railroad, the land will be ideal for industrial development. The area is part of a potential 200-acre redevelopment district.

S. Tsaguris, assistant planning director, reported their findings in a "Grade Separations Study, Cherry-Campbell Redevelopment Area." The consultant's recommendation that the City of Tucson and property owners assign their properties to a trustee who would consolidate a majority of the ownerships and vacate unnecessary streets and alleys was approved by the mayor and council. The planning staff's recommendations regarding grade separations and major street openings, estimated to cost $3,865,274, involving an overpass, an underpass, a vehicular traffic interchange, and a one way traffic system, were also approved.

Work Begins

The Tucson Title and Trust Company with its vice-president, Leamon Reneer, acting as the principal, then started the extremely complex process of property consolidation and street and alley abandonment. Guy Greene, one of the Consultants, very materially assisted the trustee in the process. City Manager J. Luther Davis practically turned city services over to the project and assigned the very capable City Right-of-Way Agent, Sam Stutesman, the job of doing most of the leg work.

Since this team was operating under the assigned deadline of April 29, 1955, some very effective emergency measures were taken. In preparation of the final redevelopment plan that would be filed as a resubdivision concurrently with all property exchanges and public way abandonments, Edmond F. Marum of the firm, Marum and Marum, Consulting Engineers, volunteered his engineering services with no definite assurance of remuneration. Cooperation was completed when City Engineer Glenton Sykes and his assistant Henry Pearson, assigned engineering field parties to work with Mr. Marum.

Several weeks prior to the final action, City Attorney Harry Buchanan assigned his assistant, Dale Healey, to the job of preparing legal instruments regarding public properties to be assigned to the trustee.

The Sunshine City of Tucson can now offer ideal industrial locations in a well-planned industrial neighborhood, adding to the general prosperity of the community.

Manual for Getting Housing Data

DETAILS for gathering data for housing surveys are given in the "Manual of Instructions for Enumerators," which has just been published by the Housing and Home Finance Agency.

The Manual may be purchased for 25 cents from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

Other than gloves, no protective clothing is required when using a compresed air sprayer and cyclone nozzle with the whirlplate removed for treating a wide pile of mixed refuse.

Fly Baiting

Insecticides made attractive to flies by addition of sweetening agents offer simple fly control

By CARROLL N. SMITH and J. C. KELLER
Entomology Research Branch
Agricultural Research Service
U. S. Department of Agriculture

MANY municipalities are confronted by problems in fly control, especially at garbage dumps and in substandard residential or commercial sections. Even at sanitary fills, flies from nearby breeding areas sometimes gather in considerable numbers, attracted by the recently dumped loads. When the garbage is covered, the flies may disperse to residential areas. Inefficient incineration, too, may be ineffective since garbage that is only half burned attracts flies.

The resistance that house flies have developed to DDT and other chlorinated hydrocarbons has added to control problems. It is no longer always possible to spray dumps and their environs with a residual insecticide and forget the flies for weeks at a time. However, it is possible to obtain good control with poisoned baits, and although these must be applied more frequently than residual sprays, the baits are economical, safe, and easy to use.

Poisoned baits may be granular or liquid formulations, but all contain an insecticide and a sweetening agent which attracts flies. The most effective insecticides are some of the organic phosphorus compounds: malathion, Diazinon, Bayer L 13/59, chlorthion, and Shell OS 2046. Sweetening agents include cane sugar, molasses, corn syrup, malt, honey, and some of the less common sugars.

Applying Bait

Spreading the bait widely but in small quantities in spots where flies are feeding or congregating makes it easy for the flies to find and feed on the bait, but almost impossible for animals or birds to consume a harmful amount. Liquid baits may be sprinkled from an ordinary garden watering can or in a coarse spray. Dry baits may be sifted from a shaker-top can. When exposed in pans, the baits are not sufficiently attractive to draw many of the flies away from a dump.

Sprinkling of 5 to 10 gallons of liquid bait per acre of garbage dump gives excellent control of house flies. However, tests reveal that part of the liquid bait is absorbed in the dump and dries too quickly in the sun; dry sugar bait will dissolve on wet surfaces. Consequently, granular baits were prepared consisting of a cornmeal base, 10% granulated sugar, and 1 or 2% Diazinon or malathion.

These baits were tested in 65 substandard locations where numerous small piles of garbage were mixed with trash behind grocery stores, markets, and tenements. About 1 ounce of bait was applied daily for 5 days. Before treatment, over 1,800 flies were counted on cloth strips soaked in a malt solution. Counts made 10 minutes, 4 hours, and 24 hours after the first application showed that the fly population was reduced by about 80%; after the second and subsequent treatments, it was reduced 93% to 98%.

Blow Flies

Blow flies were much less numerous than house flies in these localities, but several species were observed to feed on the bait. However, control was much less satisfactory than that of house flies.

Laboratory experiments and field observations demonstrated that blow flies fed readily on sweet foods but required larger amounts of insecticide to receive a fatal dose. In addition, the blow flies apparently could not dissolve and suck up the dry foods quite as readily as did house flies, which excrete large drops of digestive fluid on solid foods to facilitate feeding. The most satisfactory agents were thick liquids such as

A sprinkling can provides a simple method of applying liquid bait to mixed trash and garbage for control of blow flies and house flies. Baits that are highly viscous, such as full-strength molasses, do not lend themselves to this method.

Half-burned garbage makes an attractive breeding medium for flies, and dry baits provide a quick and convenient method of stopping the spread of house flies. This is a temporary measure which should be followed by a thorough clean-up.

malt extract or molasses which do not dry out rapidly when exposed to the sun, and are not easily absorbed by paper or other trash.

Field experiments were made in municipal and county dumps with baits consisting of malt extract, blackstrap molasses, or a 20% solution of sugar, containing from 0.2% to 2% of a phosphorus insecticide—Bayer L 13/59, malathion, or Shell OS 2046. The malt and molasses baits were dribbled on the infested area with a spatula or drip can, and the sugar solution with a garden sprinkling can. All the baits gave 93% to 99% control of house flies, but the malt bait was the most attractive to blow flies and gave kills of about 95% in 10 minutes.

Molasses was less attractive, but gave a 40% kill in 10 minutes, and 75% in four hours. Previous experience had shown these baits are most effective if applications are repeated daily for several days. The difference in cost between blackstrap molasses and malt extract was sufficient to justify a choice of the former for extensive operations.

The viscosity of full-strength molasses prevents its use in sprinkling cans or sprayers. However, studies on municipal and county dumps showed that baits containing 50% to 75% of molasses and 2% of a phosphorus insecticide in water offered the most practical application.

These baits were economical and easily applied from a sprinkling can or sprayer, and gave 75% to 85% control of both house and blow flies in 10 minutes, and slightly less control 24 hours after a single application. They were applied at the rate of 1 gallon per 1,000 square feet on those portions of the dump where the flies were feeding or congregating in the greatest numbers. Rapid treatment can be made by a 3-gallon compressed air sprayer with a cyclone nozzle from which the whirlplate has been removed.

Frequency of Application

In regular control operations, the baits should be applied daily for several days until control reaches a high level. Thereafter, applications can be made as needed, probably every third or fourth day. However, in sanitary fills, where an attendant is constantly present, each load can be treated as soon as it is dumped in order to kill the flies that may have come in on the trucks and reduce to the absolute minimum the possibility of flies spreading contagion to residential areas. If a charged sprayer is kept at hand, only a minute is required to treat garbage as it accumulates. It is an encouraging sight to see flies cluster around a drop of bait, feed, and die before one's eyes.

Sanitation is by far the most important factor in fly control and must never be neglected. However, the judicious use of insecticides can be an effective adjunct to good sanitation; baits represent a safe and simple method of application. Although the method has its limitations, the principle is sound and so flexible that operators quickly adapt applications to local needs. The essential feature is to apply the bait where flies are feeding.

Editorial Note: This work was conducted at the Orlando, Fla., laboratory of the Entomology Research Branch of the U. S. Department of Agriculture under funds allotted by the Department of the Army.

Aptitude and Training in Public Purchasing

By JAMES CLARK McGUIRE
Director
Department of Purchase and Administrative Services
The Port of New York Authority

THERE has been a great deal of talk in recent years about establishing a uniform code or table of dollar limitations on the purchasing agent with the thought that it might be adopted generally by governmental agencies throughout the country. I find it hard to reconcile any proposal that would provide the same limitations for a city of millions of people and a town of a few thousand people.

In the big city, purchasing is handled by a staff of professional purchasing officers who should be granted authorities and responsibilities similar to those which exist in a large private corporation whose purchases run into the tens or hundreds of millions of dollars annually. Purchasing in a small town may be handled by the town clerk as a part-time responsibility, and it would be perfectly reasonable to expect that he would be strictly limited as to the amounts he could spend without further reference to the mayor or town board.

Many communities have simply assumed that by obtaining a competent director of purchasing, they have automatically solved all their problems. This is a delusion. *A purchasing department is no stronger than its weakest buyer.* A competent purchasing agent can soon dissipate his energies and abilities unless he is provided with a competent staff.

Selecting Buying Personnel

Many persons pose as "buyers." Certain fundamental qualifications are too often overlooked in selecting buying personnel. I refer specifically to the qualities of imagination, analytical ability, inquisitiveness, skepticism, initiative, and a willingness to take responsibility. It is not enough for a man or a woman to have expert technical knowledge of the commodities he is buying and knowledge of markets and of the capabilities of the various vendors with whom he has to deal. We can find many "buyers" today with the technical knowledge as well as a top sergeant's understanding of all of the laws, policies, regulations, and procedures of their organization who still are not buyers in the full sense of the word. They are content to simply follow meekly the prescribed way of doing things and never even ask themselves the question: "Why are we buying this particular gadget, wouldn't something less complex and considerably cheaper do the job as well?"

Having qualified material with which to work, we must do a job of training. Too often a new buyer is left to his own devices or perhaps to the tender hands of one of the pseudo-buyers. It is our key responsibility as purchasing agents to work closely with the men and women on our staffs, to teach and guide them in the performance of their daily duties.

Developments in electronic equipment within the last year alone have indicated that we may soon be relying on machines to automatically record our inventories, write requisitions for replacement, and place purchase orders without benefit of human hands.

Many governmental agencies are still buying forms printed by letterpress which could be more economically produced by an offset process in their own shops. Engineering drawings can be produced in the office on a number of machines. In the Port Authority, for example, we realized several years ago that the annual purchase cost of blueprints (or black and whites) was reaching heavy proportions. Since early 1949 we have had two machines turning out an average of nearly two million square feet a year—virtually our entire requirement—at an accumulated saving over the cost of purchasing commercially of approximately $122,000 for the six-year period—or about $20,000 a year. These figures cover all costs, including rent, overhead, equipment depreciation, personnel, and materials.

In addition, the service to our engineering units has been speeded up and improved to the extent that our Chief Engineer has told me that the improved service alone would justify doing the work in our own unit even if it cost much more than buying it commercially.

I should, however, add a word of warning. At least several governmental agencies that I know of, as well as a number of private companies, have gone all out in this field to the extent of setting up their own complete printing plants. In most instances, they have found this venture to be uneconomical and sooner or later have disposed of these installations. If you see opportunities in this area, may I suggest that you proceed with caution.

Photography As a Tool

Another service function with which I have had wide personal experience is photography. Here again is a field in which developments occur from day to day. Photography is a working tool of tremendous value, whose full potential has yet to be realized in governmental work. For example, many thousands of costly engineering manhours can be saved through the effective use of photography in planning public works. In planning the acquisition of property and in condemnation proceedings, we have found, very literally, a picture to be worth a thousand words. The effective utilization of photography has thousands of untapped possibilities in improving almost any function that you can name.

By LEE O. HAWORTH
City Manager
Pittsburg, Kans.

An obsolete sewage-treatment plant is abandoned for a new plant that features one of the nation's most flexible designs

Pittsburg's plant uses intermediate-stage Biofiltration to provide flexibility.

Sewage Treatment That Stretches

UNTIL recently, Pittsburg, a city of 20,000 people in the Kansas coal-field area, was making an ineffective gesture to purify its liquid-borne wastes. Not only was its plant too old, it was too obsolete to do little more than feebly show its good intentions.

Today, it can handle any load. Designers A. C. Kirkwood & Associates, consulting engineers of Kansas City, Mo., have built into it an unmatched, flexibility of operation.

The plant is rated at 6 mgd (million gallons daily). It consists essentially of a bar screen, and preaeration and grit-removal facilities. It provides primary sedimentation followed by a first-stage trickling filter; secondary sedimentation followed by a second trickling filter; and a final clarifier.

The design allows the plant to be operated normally as a two-stage trickling filter. However, both the primary and intermediate clarifiers can function at the same time for primary sedimentation, followed by the two trickling filters in parallel. Also, either the primary clarifier or intermediate clarifier can be taken out of operation and the two filters still can be operated in parallel. The primary clarifier and the intermediate clarifier can operate in parallel as primary clarifiers while either of the trickling filters is not operating.

When the plant is operated as a two-stage filter plant, the first-stage filter effluent can be returned to the raw-sewage wet well by means of a float-controlled butterfly valve in an amount sufficient to maintain one 6-mgd pump in continuous operation when the raw-sewage flow is greater than 1½ mgd. By regulating a gate valve ahead of the butterfly valve, the amount of circulation can be varied as required.

The operators can also recirculate around the second-stage filter if necessary. To accomplish this, they return the flow from the sludge hopper of the final clarifier to the first-stage filter effluent wet well. If they do not desire this recirculation, they simply return the sludge from the final clarifier to the raw-sewage wet well.

The operators can either transfer sludge from the intermediate clarifier to the raw-sewage wet well or pump it directly to the digesters. They can operate digesters either on a two-stage basis or in parallel for single-stage digestion. They can take either half of the preaeration basin out of service, if necessary, or bypass the entire preaeration unit if the primary and intermediate clarifiers are operating as primary clarifiers in parallel.

Treatment Cycle

The sewage enters the plant through a manually cleaned bar screen with 2⅜-inch openings and immediately passes through a Parshall flume with 12-inch throat. A Builders-Providence float-actuated recorder measures the flow through the flume and this, in turn, plays a part in governing the operation of the other plant features.

The sewage then flows to the pumphouse where virtually all the pumps used in the plant are located.

Six major sewage pumps are located here. All are Fairbanks-Morse products, operating against heads of 35 to 40 feet. They are rated as follows:

Pump	Gallons Per Minute
No. 1	4,200
No. 2	2,100
No. 3	2,300
No. 4	2,100
Nos. 5 & 6	4,200 each

Units 3, 4, 5, and 6, located in the subbasement, are assigned the duty of pumping raw sewage. Units 1 and 2, in the basement, pump the first-stage filter effluent to the intermediate clarifiers. Under extreme and unusual conditions, these units can help pump the raw sewage. Pump 3 can be used for first-stage filter effluent as well as raw sewage. All the pumps have water seals provided by a separate pressure system that takes suction from a storage tank that draws from the city's water supply. A float-controlled valve provides the necessary flow of water through an air gap. General and Mercoid magnetic valves open whenever the pumps start, and close when the pumps stop.

Pump Controls

The pumps have Westinghouse controls, mounted on a Federal Electric Products control panel. All switches in the subbasement are explosion-proof. Healy-Ruff float con-

trols govern the operation of the pumps, so that units 5 and 6 cannot operate simultaneously. The controls also prevent pumps 3 and 4 from operating simultaneously when the control for 3 is set for pumping raw sewage; and they will not permit Nos. 2 and 3 to function at the same time when the control for 3 is set for pumping filter effluent.

The sewage then passes through the two-unit preaeration basin. Each section is 6.33 feet wide, 17 feet long, and 14.5 feet deep, excluding the hopper depth. The hopper is located on one side of the chamber so that grit can accumulate there and be removed by an air jet. Each chamber has two Chicago Pump Company swing-arm diffusers in the preaeration section, and a similar diffuser in the grit unit.

Two Chicago Pump Company compressors provide air for the basin; each has a capacity of 470 cubic feet per minute against 7 pounds per square inch of pressure. Reliance 25-hp electric motors supply power to the compressors that take air from a point outside the building. Westinghouse controls are used with the compressors and a recorder is built into each so that the hours of operation are indicated.

Effluent from the preaeration basins can be diverted to either the primary or intermediate clarifiers, or both; or it can be bypassed either to the final settling basin or to the outfall sewer.

Primary Clarifier

The primary clarifier is 90 feet in diameter and has a sidewater depth of 8.5 feet and a water depth of about 12 feet in the center. The basin uses Dorr sludge collectors and skimmers powered by a ½-hp Master Gearmotor and reducing gears so that the collector makes about three revolutions per hour.

The basin has a 2-foot-wide collecting trough set at an 80-foot diameter with collecting weirs on both sides. The basin provides a total surface area of 6,350 square feet, a total weir length of 505 feet, and a total volume of 460,000 gallons.

The settled sewage then goes to the first-stage filter which is 126 feet in diameter with a minimum rock depth of 6 feet. The bottom of the filter slopes at a grade of 0.87% toward a collection channel at the center. It is equipped with a two-armed, mercury-sealed, Dorrco rotary distributor with overflow devices at the center column so that the bottom half of the arms are used during minimum rates of flow, and both top and bottom for maximum rates. With one 6-mgd pump in operation, it takes approximately two minutes for the distributor to make one revolution. The difference in elevation between the bottom of the collection trough in the primary basin and the rock surface in the first-stage filter is about 4 feet.

The filtered sewage proceeds to the intermediate clarifier which is identical with the primary unit and, for further purification, to the second-stage filter which is a duplicate of the first-stage filter. It then will flow to the final clarifier, which is patterned after the other two but is located at a lower elevation and has no skimming device or scum pit. The operators can recirculate the sludge from the final clarifier to the first-stage filter well, or they can pump it directly back to the raw-sewage wet well.

Raw-Sludge Pumps

The plant has two raw-sludge pumps located in the pump building. These are Chicago Pump Company Scrupellers powered by Reliance 7½-hp electric motors. The pumps operate on a time cycle that can be varied from zero to 60 minutes through Eagle Signal time controls. An additional time-control unit causes recirculation of the sludge through a Pacific Flush Tank heater, rated at 750,000 BTU per hour. This unit provides heat both for the digesters and the building and can use either city or digester gas for fuel. It is amply supplied with flame arresters in each gas line. A control valve in the waste-gas burner supply line permits the flow of gas to the gas burner when a predetermined pressure has been reached.

There is also a pressure-control valve on the line that carries both city and digester gas to the heater to prevent excessive pressure from being exerted on the burners. Minneapolis Honeywell electric controls govern all gas-regulating devices. An air-exposed water-storage tank above the boiler provides for the expansion of water and avoids excessive pressures on the unit.

The two digesters that receive the heated sludge are each 60 feet in diameter and have a maximum sidewall depth of 21½ feet. The bottom slopes 6 feet down to the center, terminating in a flat base 4 feet in diameter. The maximum depth of sludge at the sidewall is 19½ feet. Both digesters have Pacific Flush Tank floating covers with relief valves in the gas domes. The gas line from each digester has a 3-inch Rockwell gas meter with a capacity of 2,500 cubic feet per hour at a 2-inch differential pressure.

Supernatant can be withdrawn from points that are 2.33, 4.64, 7.0, and 9.33 feet below the normal operating sludge level. A vented overflow pipe from the uppermost supernatant draw-off line provides for emergency overflow. The digesters provide a total volume of 120,000 cubic feet.

Normally, the operators draw sludge from a point that is 4 feet above the hopper bottom and circulate it through the heat exchanger, then return it at any of three points at the top of the digester. There are two Fairbanks-Morse bladeless impeller pumps, each rated at 150 gpm against a 60-foot head. One of these circulates liquor from the first-stage digester through the heat exchanger and back to the first-stage digester to maintain desired temperatures. The other pump will transfer sludge from the first stage to the second so that all supernatant is drawn from the second-stage unit. The pump then returns the supernatant to the Parshall flume at the head of the plant. These pumps use Westinghouse controls and explosion-proof switches.

Digested Sludge

The digested sludge goes to 15 drying beds, each measuring 40 feet by 100 feet. Drainage from the beds returns through the manhole in an outfall sewer ahead of the Parshall flume. To remove the sludge, the operators use a conveyor belt that spans the bed and that operates on rails. The conveyor can discharge directly into a truck.

Checks are made often. The lab, located in the pump building, is equipped with an 8-foot Frigidaire, a Central Scientific incubator with adjustable temperature controls ranging between 6° C and 40° C, a hood with a forced-draft ventilator, and other miscellaneous laboratory supplies.

The plant was built during W. E. Hansen's term as city manager and was put into operation in the spring of 1953. During December of last year, it received and treated sewage at a rate slightly over 1 mgd. The sewage contained 200 ppm of pollution measured as BOD. The purification process reduced this to almost 20 ppm. At the same time, the digesters produced more than 500,000 cubic feet of gas, or virtually all that was required. Demar Boisdrenghien is plant superintendent.

"Operation Vällingby"

Sweden experiments with planned decentralization

By VERA W. BEGGS*

VALLINGBY is the name of a new city rising within the confines of Greater Stockholm—a type of suburban development that would seem to challenge the consideration of municipal officials and town planners interested in the future of our own metropolitan areas.

According to Mr. Per Holmgren of the Stockholm Planning Commission, Vallingby is frankly an experiment, the first of its kind in Sweden, which seeks to build a neighborhood-community in the truest sense of the word. It is a magnificent concept involving the creation of a complete social, economic, and cultural unit within the limits of a great city but without political entity. The Swedes call it a "town part"—or even sometimes a "part town." It is a suburb only in the sense that it is an outlying section of the city. Sixty thousand people will live there, and many will find employment near their homes.

The project has had an enormous appeal from the start. Apartments, offices, and houses were no sooner begun than they were completely booked. The Real Estate Administration Board of Stockholm estimated in July 1954 that there were at least 50,000 people wanting more adequate housing in the City of Stockholm.

Originally it was hoped that one person out of every two families moving into the area would be able to find employment there. In all probability the final figure will be one out of every four, but even that will go a long way toward relieving congestion in the inner city and lessening the rush-hour traffic.

Stockholm's Town Plan

The Stockholm Town Plan is too well known to need review. Suffice it to say that even before the beginning of World War II the old concept of an inner town surrounded by "rings" devoted to business, industry, and private housing, interspersed with park areas, was no longer adequate.

By the end of the war the situation had become greatly aggravated. Defense industries had stepped up production, bringing more and more workers to Stockholm. There was also an influx of refugees both during and after the war. Building had not been able to keep up with the needs, and there was literally no more space to be had in the inner town.

For the first time, those employed in the city were forced to live in surrounding towns and villages. Rush-hour transportation and traffic-jammed streets were new to the Swedes. The population had increased 52% since 1930, and although there were—and are—no dilapidated slums in Stockholm, crowded conditions were becoming intolerable, and of greatest concern was the breakdown in family and community life.

Something had to be done. The Town Planning Commission went to work. The result was a new Master Plan which has two widely separated main objectives: (a) to remodel already built-up areas, primarily in the inner town; and (b) to establish new well-planned communities within the

* During a three-month visit to Scandinavia last year, including eight weeks in Stockholm, Mrs. Beggs was able to study the plans and development of Vallingby from the vantage point of her long experience as a civic leader in the United States. Among these activities in the public interest have been service as Commissioner of Recreation, Paterson, N. J.; member of Governor Driscoll's New Jersey Youth Committee; Chairman of International Relations, General Federation of Women's Clubs, and (presently) Chairman of Laws and Suffrage, National Council of Women of the U.S.A.

Vallingby Station plaza under construction.

outer boundaries. Thus an extensive re-organization of the city is being undertaken, involving a dispersal of industry and a migration of people from the crowded inner town to the outskirts.

"Operation Vallingby" is the first step in this program and the first of several similar units that will be located in the outer ring, on land already owned by the city.

"The Human Being First"

The development is not one of regimentation. In a monograph entitled "The Human Being First," appearing in PLAN, published by the Swedish Association for Town and Country Planning, Mr. Sven Markelius, former Director of the Stockholm Planning Commission (who is well known in the United States as one of the architects of the United Nations and also as an eminent authority on town planning), has this to say:

We require to be constantly reminded that the aim with all this progress must be to serve mankind, to build a new world which represents a better way of life in the widest sense.

This is the philosophy which has guided the development of Vallingby. The physical ingredients for a better way of life have been brilliantly provided. Air, sunshine, comfortable and pleasant transportation to and from the center of the town, recreational and educational opportunities, social services, adequate community facilities, the possibility of finding employment near one's dwelling place, close proximity to the cultural advantages of a great world capital—all contribute to an environment within which the human being may develop his own potentialities, and thus help to realize the new world of the planner's dreams.

Planning Procedure in Sweden

In Sweden the public authority for all town and country planning resides in the Ministry of Communications and the Royal Board of Building. Every town has a building committee, the members of which are chosen by the town council with the exception of one member who is appointed by the magistrate to handle judicial and legal matters. Every town has a town architect, employed by the Building Committee. In Stockholm the procedure is a bit more complicated. There is a special Town Planning Committee having at its disposal the office of the Town Planning Director, who, with his assistants—an able body of architects and engineers—composes the Stockholm Planning Commission.

A planning scheme must have the approval of the Town Planning Committee, the Real Estate Committee, and the Building Committee, and be accepted by the Town Council. It then goes to the Royal Board of Building for final approval and presentation to the King in Council for ratification.

Beginning in 1945 the work of the planning commission proceeded along scientific lines for almost four years. There were frequent consultations with other interested branches of city government, such as the Real Estate Board, the Street Department, and various commissions having to do with public utilities, education, health, welfare, recreation, and also with the "Committee for the Protection of Natural and Cultural Beauties."

After final revision and with the approval of these bodies, the basic plan for "Operation Vallingby" was accepted by the 100-member Town Council of Stockholm in 1949, and subsequently ratified by the King in Council. Actual work on the project began in 1951 and is expected to be finished in 1957.

As other self-supporting units included in the Master Plan come into being, the wide "green belt" which has formed the boundary of the City of Stockholm for so many years will become a ring of Metropolitan districts—with a few of the little "garden cities" left in between.

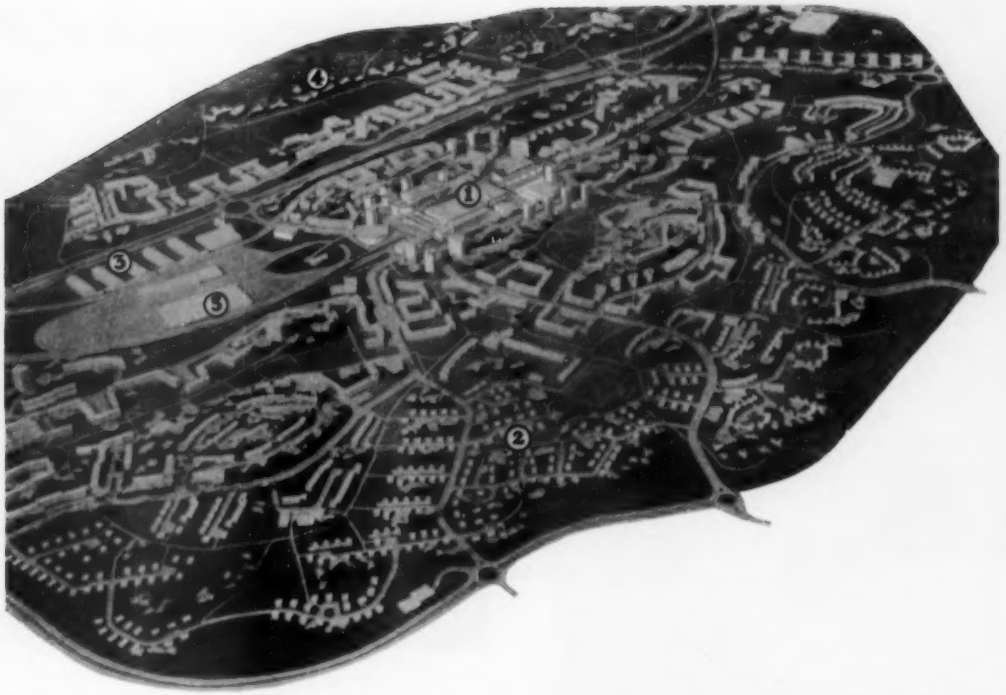
As long ago as 1874 Sweden anticipated the development of future congested areas and enacted its first Land Planning Act. Subsequently, the City of Stockholm began to buy farm land, financing the purchases by bank loans with the land as security. The farm estates so acquired were never allowed to lie fallow but were operated as farms, rented in many instances to their original owners, so that the cost of land purchases was repaid in time by rentals and the land actually became a source of income to the city

The Vallingby area comprises three such farm estates—Racksta, Vallingby and Hasselby—and presents a beautiful landscape of about 5,000 acres, extending along the shores of Lake Malaren.

Several factors dictated the choice of location. Adequate space, for parks and playfields and also for industry, made it possible to strive for a suitable balance between dwelling and place of employment. A railroad skirted the territory on the north, and a main highway passing through to the west had been built in 1930. The area was accessible to the city water supply system, and an existing purification plant in the vicinity simplified the problem of sewage disposal.

Extension of Transit System

The first operation to be undertaken was the extension of the Stockholm underground transit system from the center of the town to the Vallingby area, a distance of about 10 miles. An exhibition was arranged by the city in connection with the opening of the Vallingby terminal in 1952. Persons who tried the new underground saw the seething building activity and were shown projections of the industrial districts, com-



The Vallingby Model: (1) Vallingby Station with shops, offices, public buildings, and apartment dwellings; (2) Small cottage area; (3) Buildings put up for small industries and handicraft; (4) The beginning of the Grimsta recreation and sports area which extends all the way to Lake Malaren; and (5) The "roundhouse" for subway cars serving the area.

munity centers, dwellings, and apartments. The Town Planning Commision wanted the people to know and understand the ideas behind the construction of this particular part of the city. Even so, Stockholmers who were accustomed to high buildings in the middle of the town were not prepared to see "skyscrapers" rising on the horizon of what was to them a rural countryside. Consequently in spite of the general popularity of the scheme, the "flat blocks," 10 and 11 stories high, aroused a storm of criticism at first, which subsided as other buildings were erected.

To travel from Kungs Gatan station in the center of the old "stone town" on the clean and airy new "Tunnelbana," and in 25 minutes to come up through the Vallingby station with its modern escalators into a fresh new city taking shape around one, is a thrilling experience. Due to the topography of Stockholm, with its many waterways, the line is not actually underground much of the time, but tunnels through rock ridges and emerges to pass through some of the loveliest residential parts of the city.

As the Vallingby "Centrum" will be the big Center for the entire area —including Blackeberg which has been finished and fully occupied for some years — there are concentrated around the station plaza many buildings reserved for public use. The street floor of the station provides space for some 80 shops. On the upper floors are 70 offices. In August 1954 all were booked and some of the tenants had already moved in and were doing an active business. These included among others, a grocery store, a drug store, a beauty parlor, and the newsstand. By April 1955, 65 shops had been opened.

The Plaza Area

On one side of the plaza is a community center, with a cinema, a theater, and a special wing for civic activities and municipal offices. The central high school, the youth recreation center and the church will complete the immediate picture. In the background are the "flat blocks" and beyond them are attached terrace houses, apartment dwellings three stories high, built around open spaces with playgrounds for small children, row-houses and individual villas. There is a pleasing relationship in the proportions of the various buildings. Here and there are found areas for small 3- and 4-room houses to be built by the owners themselves, the city preparing the sites, providing materials, architectural plans, and advice. The cost for these services will be repaid to the city in the form of rent. Close by the station will be a 4-story "car-park" for 700 automobiles, with an adjoining repair shop —and there is also a "round house" for the cars of the Tunnel Bana.

The underground will extend to Hasselby Strand eventually, with an intervening station at Hasselby Gard. Each station will have its shopping center and offices. In each section will be not only housing areas, grade schools, public laundries, and day nurseries but also districts for industries and different kinds of small business enterprises.

Among the industries already booked are two that are familiar to us in America—Arenco, manufacturer of cigarette machines, and I.B.M. Both are building their own plants. Arenco has contracted to move its entire operation to Vallingby within 10 years. An expansion unit under construction in 1954 will give employment to 1,000.

Private enterprise, cooperatives, and socialized services carry on successfully side by side. Vallingby will have a public health clinic, but a professional doctors' building will be located just across the square—(the

(Continued on page 163)

The new municipal garage is built to clean, business-like lines.

Birmingham's New Maintenance Garage

Passenger-car hoists and a well-lighted truck pit simplify lubrication.

ACHIEVING efficiency used to be a difficult job at the maintenance garage at Birmingham, Ala. The old garage had limited parking and could service only four of the 500 pieces of rolling equipment at a time.

The new building is large, measuring 225 feet in length and 210 feet in width. It has plenty of parking space and all the facilities needed for maintaining anything from a motorcycle to a crane.

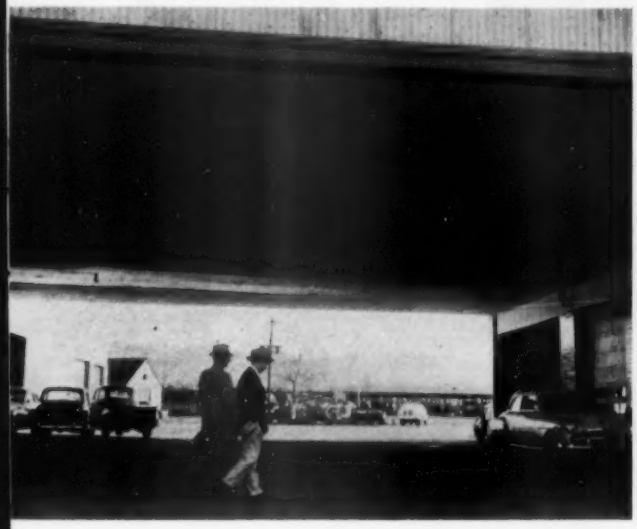
The garage has been divided into six different sections: general automotive repair; fire department equipment repair; street paving; electrical maintenance; fire department carpenter shop; and fire department electrical shop. The building is brick, business-like, and inviting. The structure uses radiant heat on the floor, which is of great help to the men who have to lie on the floor while repairing equipment. The entire building is supplied with Kinnear automatic doors with pushbutton controls.

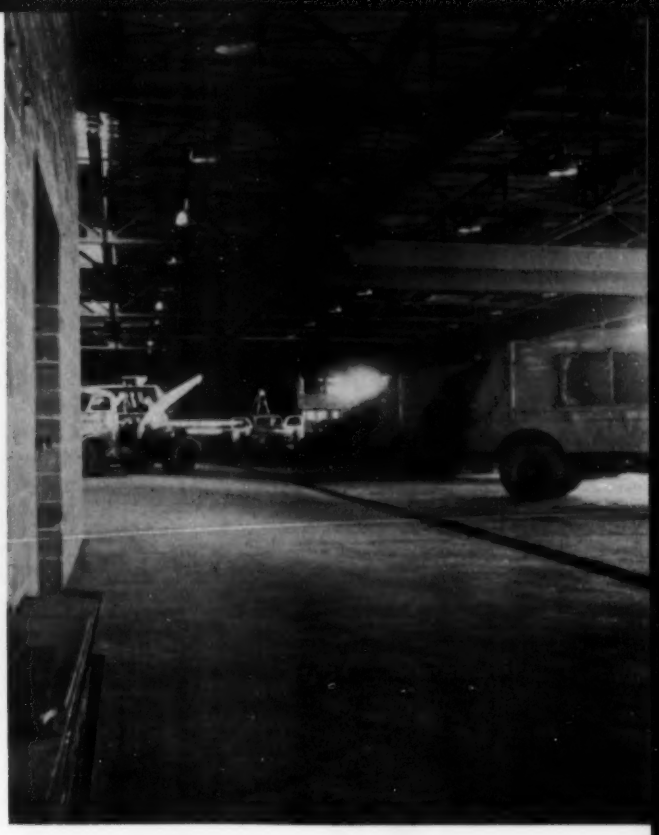
In the automotive-repair department, there are two hydraulic lifts for passenger cars and one pit for heavy trucks. The lifts and the pits are amply supplied with high-pressure grease outlets. Attached to the building is a glass-housed gasoline pumping area.

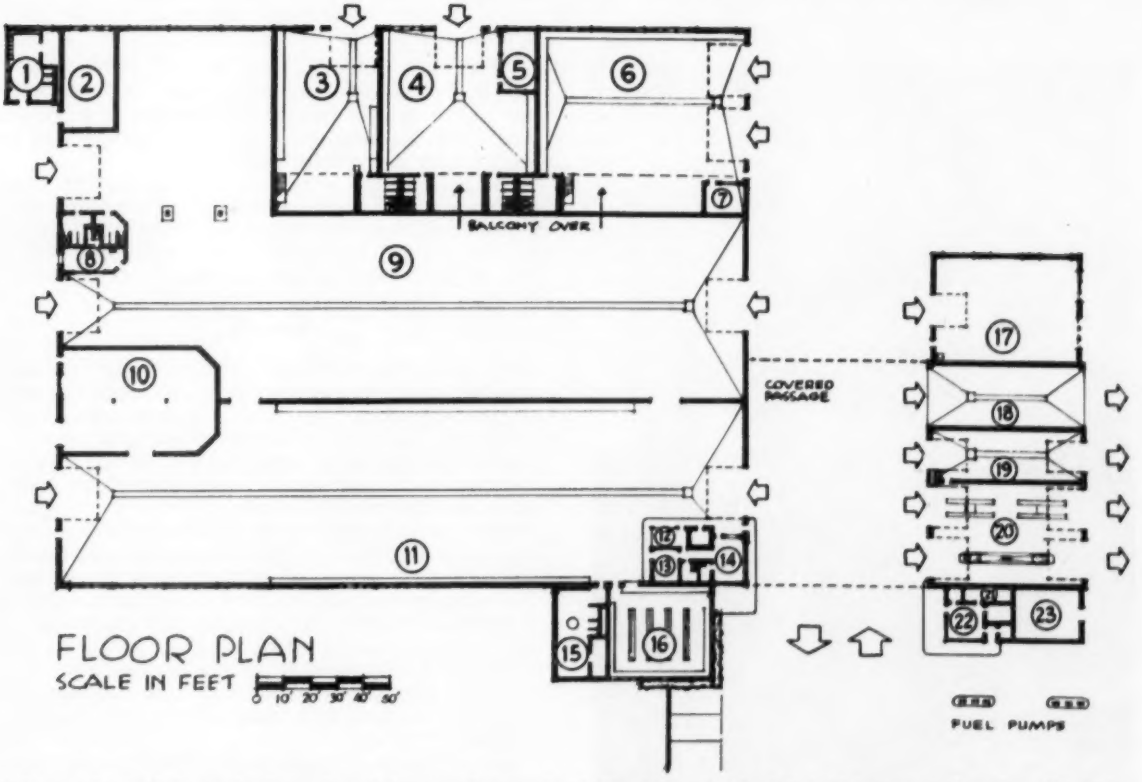
The garage comes under the general administrative duties of Mayor James Morgan.

(Right) The building has a radiant-heated concrete floor which adds to the comfort of those making underbody repairs.

(Below) An ample passageway separates the fuel and lube section of the garage (right) from the maintenance section.







A key to the symbols on the floor plan of the recently completed Birmingham's Municipal Maintenance Garage: (1) locker room; (2) mechanical space; (3) traffic signals; (4) fire department carpentry and electrical shop; (5) office; (6) fire department mechanic's shop; (7) office; (8) office; (9) paved street department and equipment storage; (10) fire hydrants; (11) repair shop; (12) office; (13) office; (14) general office; (15) locker room; (16) parts department; (17) paint shop; (18) truck wash; (19) car wash; (20) greasing; (21) battery storage; (22) office; (23) oil and tire storage.

The 24-inch feeder line uses cast-iron, coal-tar-lined pipe and geared gate valves.

By H. H. BEHLMER,
Water Superintendent and
W. P. TARBELL, *City Engineer*
Fargo, N. D.

Fargo, N. D., retailors its water distribution system to fit modern demands

Distribution Bottlenecks Broken

DURING the past few years, water distribution has run a nip-and-tuck race with Fargo's 38,000 water users. We succeeded in controlling the "supply" factor of our water works a few years ago when we boosted the capacity of our softening and treatment plant to 10 mgd (million gallons daily). By installing Infilco Accelators, we enabled our filters to handle 50% more water. However, as the demand for water increased, the distribution got out of hand. For the past few years, we have barely had enough pumping capacity to satisfy demand and yet maintain adequate system-wide pressures.

A study of our system by Black and Veatch, consulting engineers, of Kansas City, Mo., has indicated that our chief weakness is the feeder line. On the whole, our distribution mains are large enough to carry the load, except for some 4-inch pipe that we will have to replace with mains 6 inches or larger.

The heart of the problem lay in our need to bring enough water through the system at strategic points to meet peak demands. Our people frequently emptied the one storage tank in the system, making it ineffective during periods of greatest need.

A venturi tube fits into a line outside the pump-plant wall.

Remedy

To remedy this difficulty, we are building two additional elevated storage tanks with a combined capacity of 1,500,000 gallons. One tank, holding 500,000 gallons, is located close to the downtown business district and doubles the amount of water available to this area. A 1,000,000-gallon tank will be located near the far north end of the distribution system.

The principal feeder main that we have installed is 24 inches in diameter and, like all the new feeder mains, is U. S. Pipe and Foundry coal-tar lined, mechanical-joint cast-iron pipe. We will lay a total of 13,300 lineal feet of 24-inch pipe, and 17,450 feet of pipe varying from 10 inches to 18 inches by the end of 1955. The engineers based the placing of the pipe size on a distribution study using a McIlroy pipeline analyzer owned by the Mid-West Research Institute, of Kansas City, Mo.

In planning these improvements, a design population of 56,000 served as a guide for the distribution system, representing a 40% increase over our present needs. This estimate includes the students at the North Dakota Agricultural College, who must also be supplied.

Our records do not disclose our maximum hourly water use. However, the maximum daily rate recorded in 1952 was 8.57 mgd, or 185% of the daily average for that year. During the past 20 years, the ratio between our maximum day and the average has approximated this figure. Our maximum month can occur anytime from May to September, and generally will average about 30% over the annual average. We estimate that our people require 116 gallons per capita per day.

Requirements will probably increase as the use of air conditioners and other equipment requiring water gain popularity. Therefore, the engineers estimated that our water use would be 125 gallons per person per day in 1980, thus calculating our strengthened distribution system on an average demand of 7.2 mgd. They also believed that a maximum day of 200% of the average was a reasonable estimate, and that we could expect a peak hourly rate that would rise to 160% of the maximum daily rate.

In addition, they had to take into consideration fire-flow requirements. For a population of 56,000, the National Board of Fire Underwriters' formula calls for 7,000 gallons per minute in flow. Anticipating a 10-hour fire demand at this rate, and adding it to the demand for the maximum day gives us a total maximum requirement of 24.4 mgd.

Since Fargo lies on land that is relatively flat, we had no difficulty in locating the overflow of both tanks at the same elevation as our old 500,000-gallon tank. To permit the pump-station operator to maintain closer control of the water levels, we will install indicating and recording gauges on each tank and a transmitter which will relay water-level information over leased telephone circuits to plant receiver instruments. The tanks are being erected by the Pittsburgh-Des Moines Steel Company and will be provided with Electro Rust-Proofing cathodic protection systems to prevent corrosion. These have five-year service contracts.

New Switchgear

We decided that this also was a suitable time to replace our old 2,400-volt switchgear at the plant since it did not have adequate capacity to safely interrupt short circuits. As nearly as we could determine, the highest interrupting capacity of any of our obsolete circuit breakers was only 15,000 kva. The utility that supplies us with power indicated that the short-circuit capacity of their feeder lines serving the water plant was approximately 25,000 kva and would increase in the future.

Consequently, we acquired new G-E metal-clad switchgear that uses air-type circuit breakers with interrupting capacities of 50,000 kva. We are also installing a 125-volt station battery to operate the breakers. In addition, we are setting up a simple annunciation system that permits us to supervise the pump-room electrical equipment from the main lobby of the filter plant.

We also are strengthening the raw-water intake system. The four existing raw-water pumps have a total combined capacity of 15 mgd, but the two 18-inch pump-suction lines limit their effectiveness. To remedy this, a new 5-mgd Byron Jackson submersible turbine-type pump will be placed in the suction manhole near the river intake. A separate 20-inch discharge line will be laid from the pump to the treatment plant.

The entire project cost Fargo slightly more than $1,500,000. To raise this sum, the city authorized revenue bonds based on the plant's earning power and raised rates to ensure adequate earnings. The bonds, selling on a 2.47% basis, were an attractive investment. This is the third time that the city has had to raise rates since 1926. The rate variation over these years may be interesting to some readers:

Gallons of Water	Cost Per 1,000 Gallons Per Quarter 1926	1948	1953
First 250,000	$0.15	$0.17	$0.30
Next 250,000	.14	.15	.23
Next 250,000	.13	.13	.20
Next 250,000	.12	.13	.20
Excess	.10	.11	.16

Size of Meter (in inches)	Minimum Charges Per Quarter		
⅝	$0.60	$0.60	$0.90
¾	1.05	1.10	1.55
1	2.10	2.10	3.15
1¼	2.70	2.70	4.05

Because the construction season is relatively short in Fargo, we have scheduled the work as a two-year program. The first year saw the extension of the 24-inch feeder main from the plant through the main business area. This job involved the laying of pipe through traffic underpasses and under two railroad lines. The result was a 6-inch drop in pressure at the pumps.

All remaining contracts are now let and this summer will mark the raising of the elevated and low-service pump tanks and extension of the 24-inch feeder northward. The switchgear and low-service pump are already being installed. All work is proceeding without interruption of plant service.

A 24-inch line makes its subterranean way down a street.

The City Tells Its Story

Municipal Public Relations

Edited by PAN DODD WHEELER
Executive Director, Government Public Relations Association

Wichita's Public Relations Program Is Based on Sound Philosophy, Professional Help, and 4½-Cents Per Person

FOR less than a nickel a person a year, the City of Wichita, Kans., is carrying on a public relations program based on the philosophy of City Manager E. N. (Gene) Smith, the professional know-how of Paul E. Dannelley Associates, and the cooperation of Wichita newspapers, radio and television stations.

Mr. Citizen Approves

One of the city's radio programs has won the Freedom Foundation award for its "workman-like job of bringing various activities of city government to the attention of citizens and taxpayers in terms they can understand and evaluate." The light, informative brochures have attracted recognition in graphic arts circles. Daily press conferences are well attended. And periodic television programs rate high in local audience appeal.

The effectiveness of this activity—planned and produced by the public relations agency—is summed up by Wichita businessman C. R. McPherson, who says he's "learned to depend on city brochures, leaflets, newsletters, newspaper announcements, and radio and TV programs, for information about municipal government." He thinks the City of Wichita "does a really fine job of informing its constituents of various operations" about which "every Wichitan should know." City Manager Smith is enthusiastic about the organized, carefully planned, and continuing MPR program because he believes it serves the best interests of the city, the people, and the administration. His premise is "what the people do not know might hurt the city government" and he's convinced that "doing a good job and telling the greatest possible number of people the truth about it can't help but help you."

So, he devotes hours of his time for radio, television, personal appearances and consultation with his PR counselors; he budgets $10,550 annually for public information-public relations activities; and he authorizes his aide, Harold Yungmeyer, to give major attention to the PR program. Manager Smith realizes that "top flight PR is both demanding and expensive. To be truly effective," he believes, "a PR counsel should be versed in all phases of public contact. We have had very good results from buying a *portion of the time* of a highly experienced organization." Wichita's manager says that "it would cost us many times our current fee (under $4,000) to establish a full-time, year-round office, within the city, of equal competence."

Less Than a Candy Bar

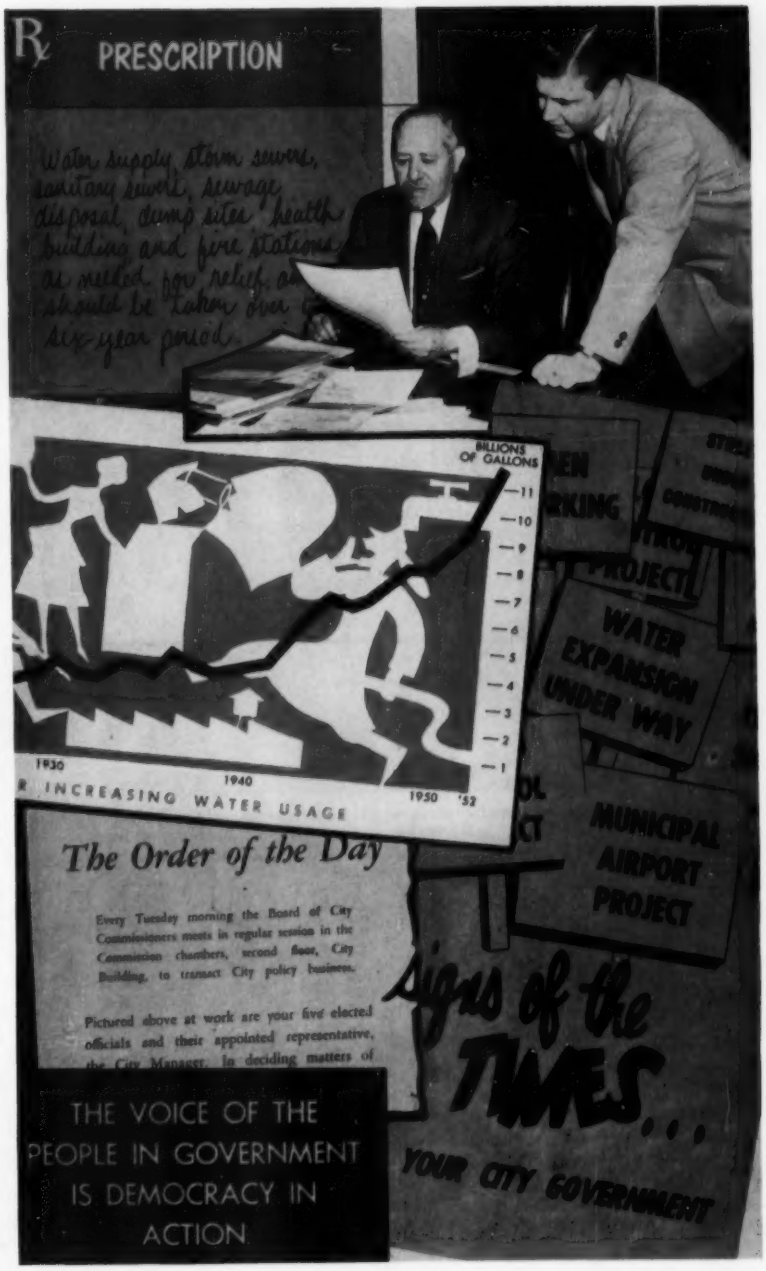
Here is how the $10,550 public relations allocation is used by the City of Wichita:

Agency fee (one year)	$3,780
City Manager's newsletter	270
Brochures	1,500
Annual report (newspaper space)	5,000

There is no charge to the city, of course, for radio and television time or for newspaper space—excepting the eight-page tabloid annual report for which space is purchased in each of the two local newspapers. The total MPR annual cost amounts to approximately 4½-cents per person. Here is what the Wichita resident gets for less than the cost of a candy bar: answers by the city manager to timely questions on "Inquiring Citizen," a weekly 10-minute radio interview at 9:30 a.m. Friday; a 15-minute radio roundup of city government activities each week on "Your City Reports," Friday night at 10:00; up-to-the-minute information on Civil Defense—"This Is Civil Defense"—every Monday night at 10:00; a summary of the city's year in photographs and story in both newspapers via Sunday tabloid supplements; periodic brochures on public works needs, status of construction work in the city, how people participate in Wichita government, etc.; a twice-monthly mimeographed news sheet, "Air-Cap" (Wichita is the air capital) from the desk of City Manager Smith; courtesy from municipal employees (a PR-plus for which the monthly employees' house organ is partially responsible); and consistent, fast and factual information from city hall written by reporters who take advantage of every-morning 9:30 news conferences in the city manager's office and of other fact-finding aids made available by the city government.

What the PR Agency Does

While the spotlighted personalities in all this are, of course, the elected officials, the city manager, and department heads, and others of the city staff, the public relations firm is the guiding influence of the MPR program. Here is what the PR agency does: plans, writes, and produces—in policy cooperation with the city manager and staff—three radio programs a week; produces the Wichita annual report; designs and writes city brochures, pamphlets, and educational leaflets (some of which are pictured on these pages), directs public relations for special City of Wichita projects, such as bond issues; interviews the city manager twice monthly and then prepares copy for his "Air-Cap;" edits the multilithed employees' newsletter;


Rx
PRESCRIPTION
Water supply, storm sewers, sanitary sewers, sewage disposal, dump sites, health building and fire stations as called for relief, should be taken over
six-year period.
BILLIONS OF GALLONS
11
10
9
8
7
6
5
4
3
2
1
1930
1940
1950
'52
INCREASING WATER USAGE
WATER EXPANSION UNDER WAY
MUNICIPAL AIRPORT PROJECT
The Order of the Day
Every Tuesday morning the Board of City Commissioners meets in regular session in the Commission chambers, second floor, City Building, to transact City policy business.
Pictured above at work are your five elected officials and their appointed representative, the City Manager. In deciding matters of
THE VOICE OF THE PEOPLE IN GOVERNMENT IS DEMOCRACY IN ACTION
Signs of the TIMES...
YOUR CITY GOVERNMENT

"What the people do not know might hurt the city," Wichita Manager E. N. Smith (seated) believes. He is perusing the script for one of three weekly city radio shows with station KFH newsman Bill Platt. Illustrations surrounding him are from Wichita publications, designed to tell the city's story, by Paul E. Dannelley, public relations consultants.

plans and carries out public relations details for municipal events such as open houses, exhibits, and dedications; assists in daily press conferences and encourages, but *does not interfere with*, alert newspaper coverage; and handles news, radio, and TV for civil defense.

Specifically, this is the way Dannelley & Associates "handles" a project—for example the radio program "Inquiring Citizen." The PR counselor meets with the manager, his aide, and others of the city staff to plan topics for the program on the basis of questions penned to city hall by "inquiring citizens." The firm then contacts and rounds up participants and writes an outline of the program. Radio station KFH announcer, Bill Platt, works the show from this outline. Production props are also prepared or provided by the PR agency. This 10-minute weekly show is the one which earned the coveted Freedom Foundation award. Incidentally, the other weekly Wichita radio program, "Your City Reports," on station KAKE, stood up so well in a recent Wichita listening survey that the station has placed it and the city CD show in time slots held by "long-established news programs on Monday and Friday nights."

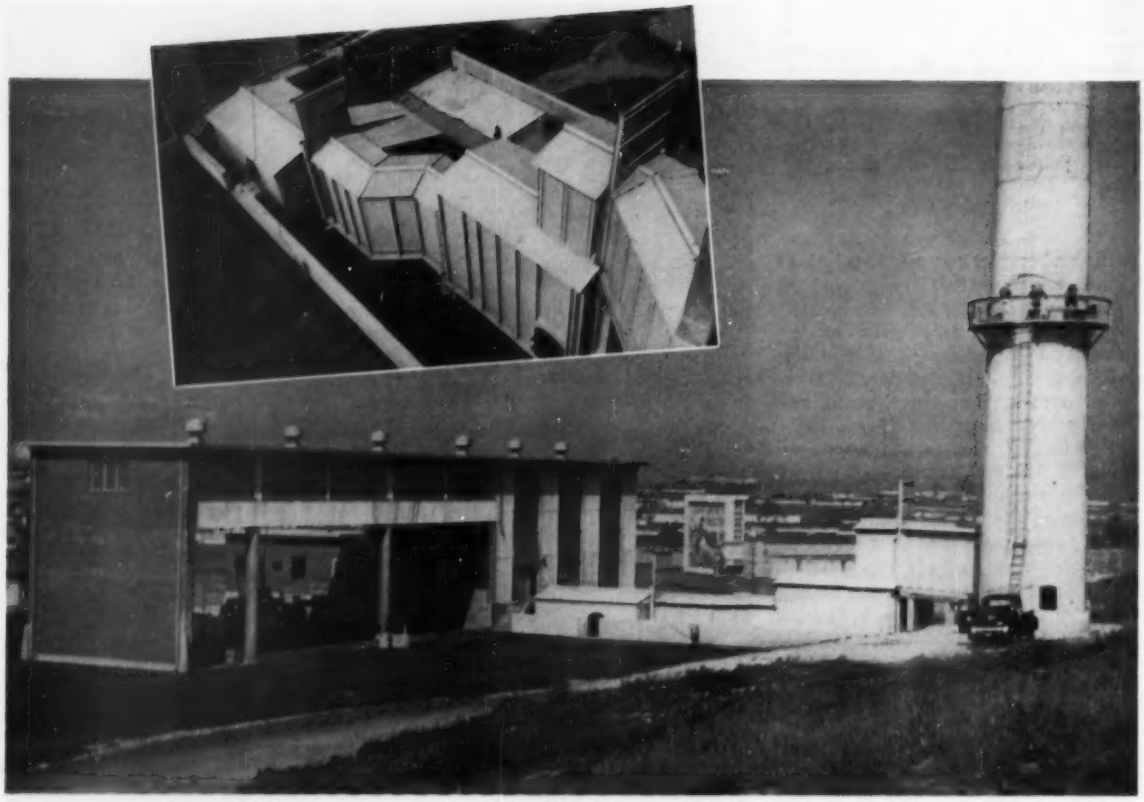
Colored Slide Library Planned

With an energetic PR effort in operation, City Manager Smith is in no mood to let up. More television programs and a library of colored slides showing the work of all municipal service units are planned for the immediate future. The city has used television effectively on special occasions with the Dannelley firm producing the programs in cooperation with TV-station staffs. Wichita looks to the time when it may use TV regularly in the sucessful pattern established by its radio programs.

The colored slides are being made by the well-equipped police department photographic bureau (a fact which "drastically cuts slide-making costs" according to the PR counselor). Five complete copies will be made of each slide and the library will be kept up to date, new or better slides replacing outmoded or less interesting ones. Divisional reports, such as those of the fire department, are to be kept in separate magazines so that the department, for example, can show its own story. This, Mr. Dannelley calls "another 'Smith-ism' designed to get the greatest possible distribution of the City's story."

Wichita's slides are to be used with live commentary or a taped sound track. When complete, the colored slide library will contain the graphic story of the city's work in a form suitable for almost any kind of group. It will be available to youth organizations, church groups, social and professional clubs, service associations, convention gatherings, workers' groups, etc.

Basic to the Wichita MPR program is not only recognition that people need information and that city officials are responsible for getting it to them, but also the belief of Mr. Smith that city government is exciting story material.



The Los Angeles Harbor District plant must meet exacting air-pollution standards. The men on the platform surrounding the chimney are sampling stack gases. (Inset) The combustion-chamber flues and expansion chamber follow an irregular tortuous path in order to help induce removal of the fly-ash particles that contribute heavily to the pollution of the atmosphere.

Incinerator Design and the Fly-Ash Problem

(Part III, Conclusion)

Some ways to remove fly ash, typical costs, and operating expenses

By SAMUEL A. GREELEY,
SAMUEL M. CLARKE and RICHARD H. GOULD
Greeley and Hansen, Consulting Engineers
Chicago, Ill.

UP to the present, equipment for the removal of particulate matter from the raw gas has been very largely limited to so-called expansion chambers, which are enlarged sections of flues between the combustion chambers and the chimney, with or without baffling. These function more by centrifugal force and impingement at changes in direction or in cross section than by subsidence.

They are effective in removing the large particles of fly ash. However, means for continuous removal of the extracted solids from the chamber are not available, and it is difficult to prevent some of these solids from being reintroduced into the gas stream. It is possible ordinarily to remove the solids only during the weekend shutdown periods.

Careful measurement at the Gansevoort plant in New York City indicated that, over a week's period, such a chamber removed and retained about 15% of the fly ash in the raw gas. A like amount was removed in the flues to and from the chamber.

Model experiments by the Battelle Institute, of Columbus, Ohio, for New York City have indicated that the efficiency of the Gansevoort expansion chambers can be more than doubled by the installation of certain vertical and horizontal baffles.

In our practice, we have used expansion chamber volumes within the limits of 20 and 50 cubic feet per ton per 24 hours of furnace capacity. The plant now

under construction at the District of Columbia has a chamber volume of 204 cubic feet per ton. It is probable, however, that the efficiency of an expansion chamber is dependent as much on proper design as on volume. Pertinent design features are inlet and outlet arrangements, the layout of the chamber itself, and the baffling.

A few plants in Southern California have been equipped with simple water spray chambers, which are said to be effective in meeting the Los Angeles County requirements for the discharge of particulate matter. These installations include induced-draft fans.

Milwaukee Plant

The recently completed plant at Milwaukee, Wis., has installed water-washed, metal-impingement baffles in a chamber that has a water-filled floor. This equipment is reported to have met, under test, requirements similar to those of Los Angeles County. The metal baffles extend from the top to somewhat below the horizontal center line of the chamber, so that the gases are directed at high velocity over the water surface. We understand that some modifications to this design are contemplated.

The mechanical and electrical equipment, which has found extensive use in connection with power plants, has not as yet been applied to incinerating plants. An exception is the plant at the Town of Hempstead, N. Y., which utilizes multiple cyclones that follow waste-heat boilers. Data as to the efficiency of this installation are not available.

For either the multiple cyclone or the electrostatic precipitation type of equipment, it would be necessary to cool the raw gas to a temperature of about 600° F. or less. This can be done by passing the gas through a steam boiler, for which the first cost would be very high; by adding cooling air, which would greatly increase the volume of gas to be treated; or by evaporating water sprays, which would involve large quantities of water and an unsightly steam plume at the chimney top.

In power-plant practice, the mechanical type of equipment has attained efficiencies in excess of 80%, and electrostatic precipitators in excess of 90%. The application of such equipment and efficiencies to incinerating plants at this time should be considered as speculative.

The unit costs of construction of refuse incinerating plants which provide subsidence of expansion chambers, are, in general, between $3,000 and $4,000 per ton per 24 hours of rated capacity. The following matters influence the cost:

1. The volumes of the furnaces, and of the combustion and other chambers
2. The size, type, and ornateness of the building
3. The enclosure of the tipping floor which may be a roof, a fence, or a building, or which may be omitted
4. Whether the fire brick construction is solid or supported sectionally
5. Local conditions, including the cost of approaches and foundations.

The unit cost of operation, under present conditions, also varies with many local factors, but may be illustrated as follows:

Typical Unit Costs

Item	Per Ton Burned
Payroll	$1.78
Power	.19
Supplies	.14
Maintenance and repairs	.33
Operating cost	$2.44
Debt service	.82
Total	$3.26

Some unit costs of construction are given below:

Size and Limit Costs of Incinerator Construction

Location	Rated Capacity (tons per 24 hrs.)	Cubic Ft. of Vol. Per Ton: Furnaces and Chambers	Cubic Ft. of Vol. Per Ton: Building	Cost per Ton of Rated Capacity
Gansevoort, N. Y. C.	1,000	84.0	2,068	$4,485
Baltimore, Md., No. 4	800	38.6	——	2,860
Chicago, Ill.	720	65.0	2,222	3,006*
District of Columbia	500	247.3	1,870	4,000*
S. E. Oakland, Calif.	450	80.4	1,475	2,867*
Winnipeg, Manitoba	400	43.8	1,260	1,812**
Buffalo, N. Y.	400	63.0	2,400	3,763
St. Louis, Mo.	400	102.6	2,550	3,957*
Brookline, Mass.	300	46.2	——	3,410
Los Angeles, Calif.	200	60.5	1,120	3,232
Alexandria, Va.	200	72.2	1,445	3,513*

* Under construction
** Built in 1946

Based on a study and report made for the District of Columbia on fly-ash removal facilities, the following units illustrate the relative cost of several kinds of such facilities:

Fly-Ash Removal Facility	Cost Per Ton of Rated Capacity
Simple baffled chamber, with or without water sprays	$ 150 to $ 300
Cyclones, with gas cooling by air	700 to 900
Electrostatic precipitation	2,000 to 2,200

Plans and Specifications

Practice in the preparation of plans and specifications, taking of bids, and awarding contracts varies widely. We think it proper for the municipality to prepare the plans and specifications and to assume the risks of operation. Some still require the contractor to guarantee fully the performance of the plant and to assume the incident risks.

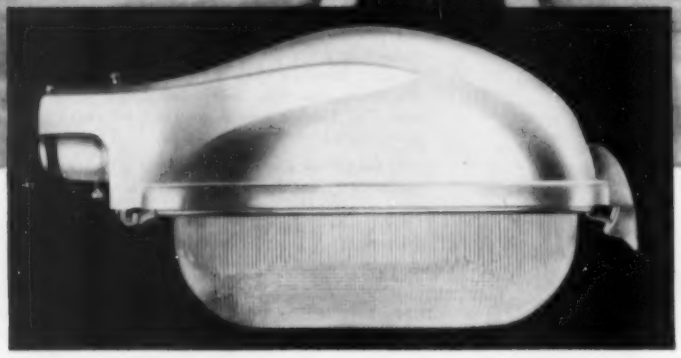
More recent and more desirable practice involves the following procedure:

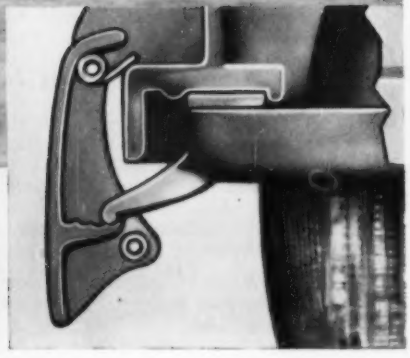
1. Bids are first taken on general plans and specifications for alternate types of furnace and appurtenances, the bidders being required to assume complete guarantees of operation. Detailed plans and specifications are then prepared by the municipality for the building.
2. Detailed plans and specifications are prepared by the municipality for the building to house either round or rectangular furnaces, thus including competition on furnaces and shortening the time before all construction work is under way. The bidders may or may not be required to guarantee performance.
3. Complete plans and specifications are prepared by the municipality for the entire plant, the municipality requiring no guarantees of performance.

During the last four years, we have prepared plans and specifications for 10 municipal refuse or rubbish incinerators and have been consulted about three others. In eight of the 13 projects, no guarantees of the results of operation have been required of the contractors; the municipality prepared complete plans and specifications for both the furnaces and the building. Thus, in only five of the 13 projects have the results of the operation been required to be guaranteed.

(Continued on page 169)

A typical example of Westinghouse street and tunnel lighting. OV-20's in the foreground, FU-72 luminaires in the tunnel.





Automatic latch (upper right)—As globe closes, latch locks in position. Built-in, double-torsion spring provides driving power for latch. Leaf spring on hinge side provides upward pressure, seating globe tightly against gasket.

Why Seattle specified Westinghouse OV-20 luminaires on their new freeway

Problem: Select a street light that would give Seattle drivers the best possible night visibility on the new Alaskan Freeway and smooth good looks by day. A point-by-point analysis showed Westinghouse OV-20 mercury luminaires to have these qualifications as well as the following superior mechanical construction and maintenance features.

One-piece cast aluminum housing—adds rigidity and weather resistance to the OV-20.

New optical system—New reflector and refractor design improves distribution of light along the street.

Weatherproof seal—between the housing and glassware, holds cleaning to a minimum.

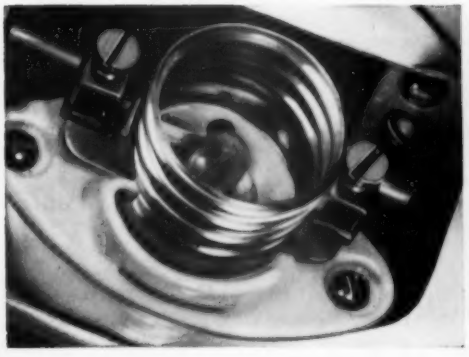
One-hand maintenance—Cleaning, washing and relamping can be done without tools, and without exposing the wiring or damaging the stationary reflector. Open-type latch makes it impossible to drop glassware while cleaning.

Smooth good looks—Mounted on either concrete or metal poles, the modern unbroken design of Westinghouse mercury luminaires adds a progressive appearance to large communities and small.

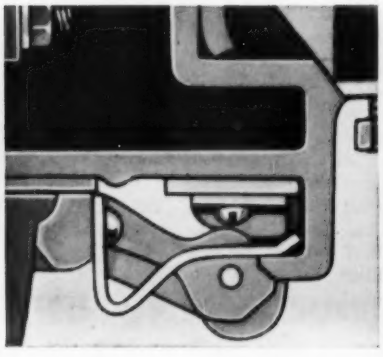
And the Westinghouse OV-60, second member of the mercury family, gives wide streets better visibility and greater uniformity of pavement brightness—with all the plus features of the OV-20.

Be sure you specify Westinghouse OV-20 mercury luminaires—the original mercury street light—copied in general appearance but never duplicated in performance. More information? See your nearby Westinghouse representative. J-04379

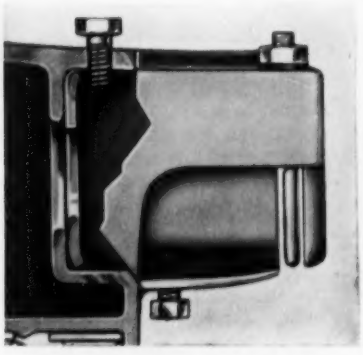
YOU CAN BE SURE...IF IT'S Westinghouse



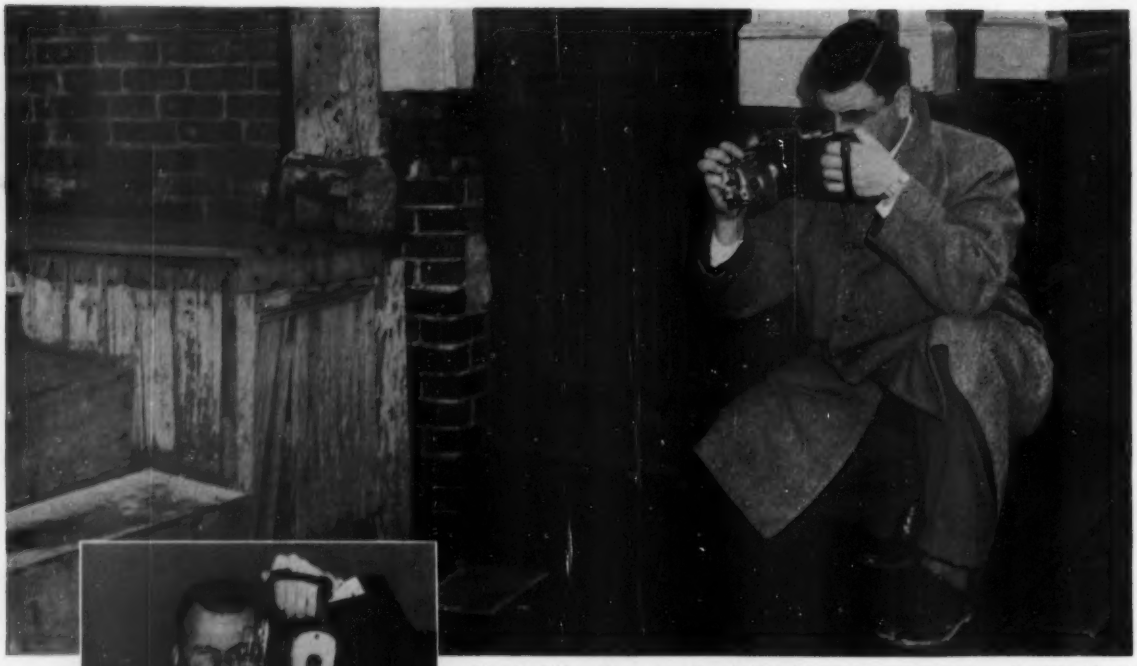
Pressure-type terminal makes sure of a tight connection without damaging the conductor. Unnecessary maintenance expense is minimized by this construction.



Open-type hinge speeds cleaning time. To remove glassware, swing back and lift out. This design feature makes maintenance quick and easy.



Bug-proof wiring—Offset pipe stop shoulder, inside slip fitter, prevents entrance of water. Felt gasket on pipe stop eliminates dirt and bugs.



City Building Inspector Frank Mondano (above) photographs dilapidated beams and staircase of a run-down house. Mayor Quigley and camera in action (left).

60-Second Pictures

Save Chelsea, Mass., Time and Money

By ANDREW P. QUIGLEY
Mayor
Chelsea, Mass.

A GIFT I received two years ago has saved time and money, and has increased the efficiency and diplomacy of my municipal department heads and employees as well as my own. The gift was a Polaroid Land Camera. That's the one which produces a dry post-card-size picture 60 seconds after the shutter is snapped. I took the camera to my City Hall office where it has become a part of the Quigley administration.

Chelsea's nine Aldermen are not professional politicians. They hold regular jobs and schedule one meeting a week to municipal affairs. They have subscribed to the adage: "One Picture Is Worth A Thousand Words." In several deliberations—proposed municipal parking lots and widening of streets—60-second photographs, sometimes taken only an hour or two before the meeting, brought prompt resolutions by the Aldermen. Each Polaroid print costs 22 cents, plus 12 cents when a flash bulb is used. The city had to pay about $3.50 to $4.50 more for each print when professional photographers were hired.

Public Works and Planning

Each department head knows that our Building Commissioner William J. Hendry has bought one of these cameras from his last annual appropriation and keeps it in his office. His first few experiences with the camera late in 1954 proved so successful and helpful that he recently told me he's "going to shoot almost every project my men tackle in 1955."

Hendry's initial use of one-minute pictures eliminated the need and cost of redrafting original plans of a grammar-school building. His men first thought there was a broken sewer pipe. It turned out there was no pipe there at all. Quite a bit of excavation had to be done to "get a run" on another sewer line and hook it up inside the school. Before the excavation was refilled, Commissioner Hendry took 60-second photographs of the new pipe alignment. He marked each print at the scene and now has valuable supplements which complete the original plans.

Chelsea's Building Inspector, Frank

(Continued on page 161)

CROUSE-HINDS offers all 3 types of high intensity airport runway lights

The Crouse-Hinds Company offers all three types of high intensity fixtures to meet the three CAA Specifications (L-818, L-819 and L-820). All three fixtures (types HRC, HRL and HSL) are approved by CAA.

Type HRC utilizes a double prismatic lens system on a cast aluminum base, with a 500-watt, 115-volt lamp mounted on a movable socket. The main beams may be "toed in" or "toed out" by remote control from the tower to provide the best setting for particular visibility conditions. The candlepower is the highest of the three types. In bad weather the pilot sees more lights and sees them sooner with this system.

Type HRL is constructed with an optical prismatic Pyrex globe mounted on a 3-piece cast aluminum fixture assembly. Each fixture uses a 200-watt lamp and is provided with a series-to-series insulating transformer installed underground in the base housing.

This system has the lowest installation cost. Its use is often justified for non-instrument runways, as well as instrument runways.

Type HSL has a cast aluminum housing with two 95-watt sealed beam high intensity lamps inside and a 30-watt medium intensity light on top. Three insulating transformers are installed underground in the base. Each of the three lamps may be switched separately from the tower.

This system is economical to operate, since only 95 watts is used for the high intensity beam, and a 30-watt light is used in good weather. This fixture provides a main beam in only one direction, without the background haze resulting from the "back beam". After relamping, the sealed beam optical system is back to 100% initial efficiency.

All three fixtures provide the basic high intensity candlepower required and the three types have many construction features in common such as: cast aluminum housing, Pyrex glassware, disconnecting cable connector, same breakable coupling and standard steel base with base plate. All three units provide the necessary top light and side light needed for planes not on the approach path and all use a 5-stage brightness control.

Write for Bulletin 358-F. It contains detailed features and an impartial comparison of the relative advantages of the three systems with estimated installation costs of each.

CROUSE-HINDS COMPANY
Syracuse 1, N. Y.

OFFICES: Birmingham, Boston, Buffalo, Chicago, Cincinnati, Cleveland, Dallas, Denver, Detroit, Houston, Indianapolis, Kansas City, Los Angeles, Memphis, Milwaukee, New Orleans, New York, Philadelphia, Pittsburgh, Portland, Ore., St. Louis, St. Paul, San Francisco, Seattle, Tulsa, Washington. RESIDENT REPRESENTATIVES: Albany, Atlanta, Baltimore, Baton Rouge, Charlotte, Chattanooga, Corpus Christi, Reading, Pa., Richmond, Va., Shreveport
Crouse-Hinds Company of Canada, Ltd., Toronto, Ont.

A Nationwide Distribution Through Electrical Wholesalers

AIRPORT LIGHTING · FLOODLIGHTS · CONDULETS · TRAFFIC SIGNALS

The lamp and socket swing down as part of the glassware assembly, become automatically de-energized for quick, Service-Safe re-lamping during circuit operation.

The refractor assembly swings wide open on the house side, for easy re-lamping. Refractor assembly can be removed easily but not accidentally.

Make-before-break action of contacts . . .

L-M's New Series Ovalite is Automatically De-Energized with New Service-Safe Feature

Both lamp and socket are automatically de-energized and isolated from series circuit when glassware swings down. Make-before-break action of contacts in series luminaire eliminates arcing.

By **DEAN W. MORRILL**, Lighting Application Engineer, Line Material Company

L-M's new mercury vapor Ovalite offers outstanding design features for safe, economical servicing of the luminaire, in addition to its efficient light distribution.

The lamp and socket swing down as part of the glassware assembly; as the socket leaves the receptacle, it becomes automatically de-energized, and much more accessible for quick, safe re-lamping of the luminaire during circuit operation, saving service time.

Contacts on the series Ovalite are so designed that there is a make-before-break action, which means the lamp connections are shunted before they are disconnected. In restoring the connection the same principle applies. The lamp connection is made before the shunt is opened, eliminating arcing.

The contacts are silver-plated beryllium copper; socket is steatite; receptacle is wet-process glazed porcelain with a 5,000-volt insulation rating which meets EEI-NEMA specification of 19,000 volts withstand.

This new Ovalite provides a choice of horizontal or pendant mounting for mercury vapor; choice of types III or IV light-distribution patterns.

The Service-Safe feature of L-M's Ovalite is available in both multiple and series luminaires.

Get Complete Information

This series luminaire is specifically designed for the Uni-Ballast system. Ask the L-M Field Engineer or Lighting Engineer for information on the new L-M Ovalite; on Uni-Ballast, the most economical system for mercury vapor lighting; and on L-M's Lighting Recommendation Service. Or write Line Material Co., Milwaukee 1, Wis. (a McGraw Electric Company Division).

"Ovalite," "Uni-Ballast" and "Service-Safe" are Line Material Company trademarks.

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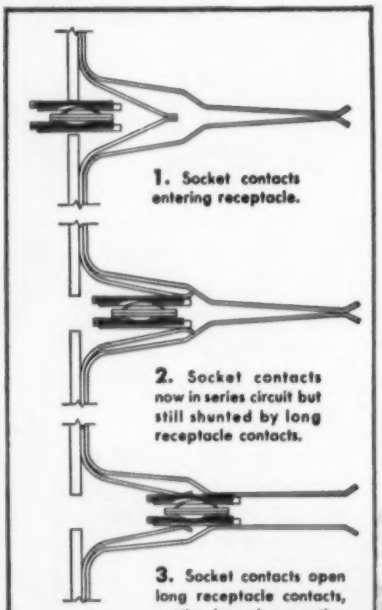

1. Socket contacts entering receptacle.
2. Socket contacts now in series circuit but still shunted by long receptacle contacts.
3. Socket contacts open long receptacle contacts, putting lamp in operation in series circuit.

NOTE—Procedure is reversed when socket is withdrawn during luminaire opening. Lamp is shunted before being withdrawn from circuit. This make-before-break action eliminates arcing.

LINE MATERIAL
Street Lighting

Outdoor Lighting

Modern Street Lighting

By S. STANDLEY
Product Manager, Street Lighting
Line Material Company
Milwaukee, Wis.

INCANDESCENT, mercury vapor, and fluorescent street lighting are the three types available. Over 80% of all street lighting is incandescent. Mercury vapor's application on a broad scale occurred only about 10 years ago; fluorescent applications are much more recent.

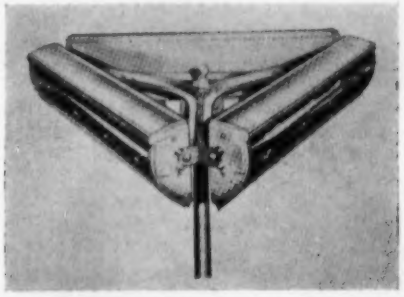
Furthermore, according to a recent survey, 80% of presently planned installations will be incandescent. Another 15% will be mercury vapor, and 5% will be fluorescent.

Each type provides fine lighting, and selection is dictated by (1) the municipality's desires, (2) rate structure, (3) electric distribution system, and (4) evaluation.

Incandescent Lighting

Probably the continued high proportion of planned incandescent lighting can be attributed to the increasing demands for improved residential lighting, much of which requires entirely new systems. Its advantages are installation simplicity, economy, and good color. Installation simplicity can be ascribed to the crews' experience in installing incandescent systems and that less equipment may be required. This is particularly true on multiple systems where IL transformers are not necessary. With improved cable insulation, higher voltage receptacles, heat barriers, and more room in the luminaire heads, the protective needs for IL transformers on series systems have been negated to a great extent.

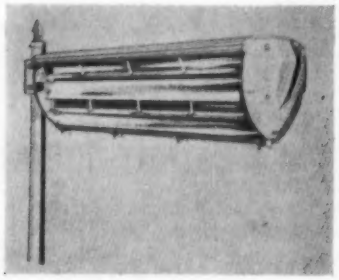
Economic advantages of incandescents are derived not only from reduced labor charges, but also from the inexpensive lamp and luminaire. Color of incandescent light closely resembles natural light to which the human eye is accustomed; therefore, it is appealing to the public. Engineers like incandescent lighting, too, because being the smallest light source, it can be easily controlled photometrically. Desired light distribution patterns can be achieved more readily.



The fluorescent delta luminaire is particularly desirable for parking-lot lighting.

There are two sides to everything, and incandescent lighting has some disadvantages. The output is 15 to 20 lumens per watt. When compared with the output of other light sources, this is low, and is generally considered inefficient.

The life of a conventional incandescent lamp is 3,000 hours, under laboratory conditions. Actual in-service life may be appreciably shorter due to traffic vibrations, thermal shocks, or voltage fluctuations. Since the incandescent lamp is the filament type, it is affected more by these service conditions than are other light sources.



This four-lamp horizontal fluorescent luminaire is successfully applied to narrow streets. It may be tilted up to 20° above horizontal.

Mercury-Vapor Lighting

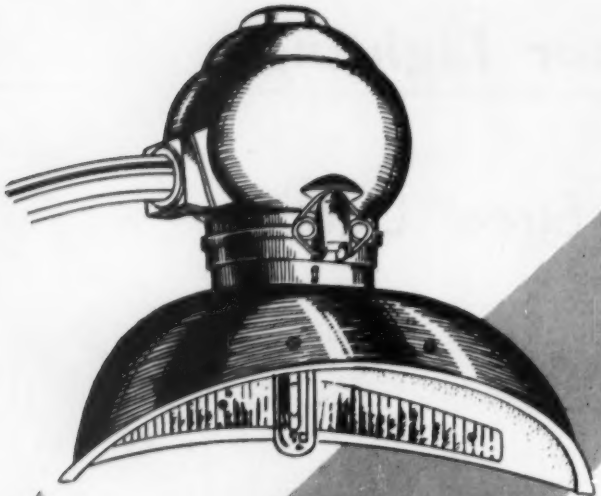
Most of the mercury installations presently planned will be in business districts. Changed buying habits have necessitated relighting business areas, and the construction of suburban shopping centers. Both city and suburban shopping areas must be well lighted to be safe, particularly for women.

Mercury-vapor lamps produce 40 to 50 lumens per watt. Lumens per fixture range from 20,000 to 35,000 lumens. Because of their higher efficiency and greater intensity, mercury-vapor lamps provide a specific lighting level with fewer units than would be required with incandescents.

Mercury-vapor lamps are rated at 6,000 hours—twice as long as conventional incandescents. These lamps are comparatively unaffected by traffic vibrations.

The blue-white characteristic color of mercury-vapor lamps has been a point of contention. Some users say the color is objectionable; others call it distinctive. Now with color-improved mercury-vapor lamps available in addition to the original lamps, users can choose the one they prefer. Color need not be a deterrent.

Mercury lamps are more difficult to control photo-



CHECK THESE PLUS FEATURES

exclusive with

Wheeler

100 WATT MERCURY STREET LIGHTING

✓ Performance plus! The 100-Watt admedium mercury lamp for which this WHEELER-engineered luminaire was designed produces 3,300 lumens initially. And although rated 4,000 hours, this WHEELER unit actually provides *average* service life of 15,000 hours to burnout. If burned for 8,000 hours, the average output over life is about 2,500 lumens — a schedule that drastically reduces lamp replacement costs. This lamp warrants broad acceptance, as shown by customer economic studies.

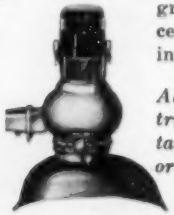
✓ Multiple ballast contained in EEI-NEMA head. (Series ballast externally mounted).

Typical installation: City of Northampton, Mass.

✓ Absence of enclosing glassware in uniquely successful Crescent reflector provides absolute minimum of first cost, plus fine optical performance without excessive glare. Types I, II and V distributions available.

✓ Sensitivity of the human eye to low intensities of blue light (Purkinje Effect) makes this lighting more effective than incandescent in fringe areas of low lighting intensity, such as residential areas.

✓ The WHEELER 100-Watt Mercury Street Lighting unit provides approach lighting of a similar blue-green color on secondary streets adjacent to high intensity mercury lighting installations.



Also available with integral photoelectric control for a completely self-contained street lighting unit, incandescent or mercury.

Wheeler WHEELER **STREET LIGHTING**

SPECIALISTS IN SKILLED LIGHTING SINCE 1881
275 CONGRESS ST. — BOSTON, MASS.

Wheeler REPRESENTS THE MOST ADVANCED ENGINEERING IN STREET LIGHTING

metrically because they have larger light sources than incandescents. Thus, these lamps are generally available to yield three light distribution patterns, whereas incandescents yield seven patterns.

There has been considerable lamp development recently. New color-improved, pear-shaped, mercury lamps of lower intensity and lower wattage are available. Mercury-vapor lamps in residential areas may supplant some incandescents. These new lamps are 100 watts, 3,300 lumens; 175 watts, 6,000 lumens; and 250 watts, 10,000 lumens. Their longer life necessitates fewer replacements.

The luminaires for these new lamps will be smaller and less expensive because designers have less heat dissipation to consider due to lower wattage. Some of the present luminaires may also be adaptable for use with the new lamps. Other new mercury-vapor lamps are the 425-watt A-H17 and B-H17.

In review, mercury-vapor lamps offer high efficiency, high intensity, long life, and favorable color. At the same time, they are more expensive than incandescents on a unit basis, require more auxiliary equipment, and have slow starting characteristics.

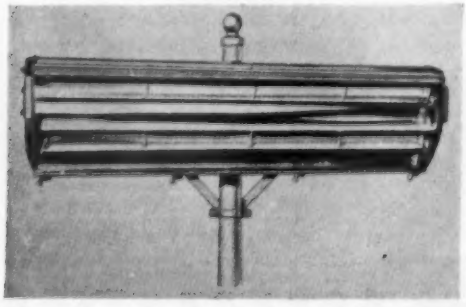
Fluorescent Lighting

Fluorescents have the best color-producing ability and a low surface brightness. This last characteristic makes fluorescents particularly applicable to tunnels and underpasses, where mounting heights are limited. They have a 7,500-hour life, longest of the three light sources. It is due to low pressure in the fluorescent tubes, quality of the electrodes, and the low operating voltage of 120 volts. Fluorescents are the most efficient, yielding 50 to 60 lumens per watt, which is slightly higher than mercury-vapor lamps. Lumen output increases as ambient temperature decreases. This increase continues until the temperature is slightly below zero; then lumen output decreases as temperature decreases.

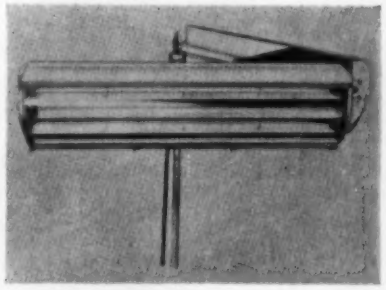
Fluorescent tubes presently used for street-lighting applications are 72 inches long. Size makes them the most difficult units to control photometrically. Lighting patterns specified by IES for other light sources basically are impractical to achieve with fluorescent sources.

Fluorescents require ballasts. Since the luminaires house both the light lamp and the ballast, they are rather large. As a result, installation costs are higher due to size and weight. Initial unit cost is high, too.

Four types of fluorescent luminaires are available, as shown. The first is a four-lamp unit that may be mounted horizontally or tilted up to 20 degrees above horizontal. The horizontal unit is particularly applicable to narrow streets, as it provides generous sidewalk lighting. The tilted unit, naturally, reduces the sidewalk lighting by moving more light to the roadway where it is needed most. Consequently, additional coverage unattainable by means of refractor control is achieved by the tilted mounting. Tilted units are gaining in popularity.



The two-lamp horizontal fluorescent luminaire is successfully applied to areas of low surface brightness.



The V luminaire does an effective job of lighting wide avenues.

The V luminaire is desirable for wide avenues or boulevards, while the delta unit is useful for parking-lot lighting. Two-lamp luminaires have been applied successfully in tunnels and underpasses where low surface brightness makes low mounting heights practical.

The wide and warm acceptance of fluorescent lighting already indicates the need for new luminaires for 24-inch, 48-inch, and 96-inch tubes.

Whiteway in Joplin, Missouri

THREE years ago the Kiwanis Club of Joplin, Mo., wanted a worthwhile civic project for the club. Previously, the club had aided in a fund-raising project that resulted in the installation of Joplin's original whiteway system, about 1920.

Those lights had become obsolete and costly to maintain. Neighboring towns had installed modern lighting. Why not again take the lead in modernizing Joplin's street-lighting system?

A plan, providing for a greatly expanded network that would properly illuminate additional important streets in the business sections and doing away with fund-raising, was ultimately adopted. Consideration was given to three suggested measures for financing: (a) entire investment by Empire District Electric Company; (b) entire investment by others; (c) part investment by Empire and part investment by others. The decision was for Empire to pay the total construction cost. The company would own, operate, and maintain the new system, supply power, pay taxes, insurance, assume all liabilities, and bill the city annually at an established rate.

Lighting was made possible through one of the Empire District Electric Company's street-lighting program plans to furnish technical assistance in the form of lighting layouts and rate schedules.

There are 635 General Electric luminaires, mounted on 26-foot Union Metal steel poles. The downtown streets have 10,000-lumen lamps; all others have 6,000.

Those concerned with higher-up maintenance and repairs can put a man overhead smoother and faster with a HOLAN "2100" Aerial Ladder! It's hydraulic all the way with three levers for pinpoint control of height, elevation, and rotation.

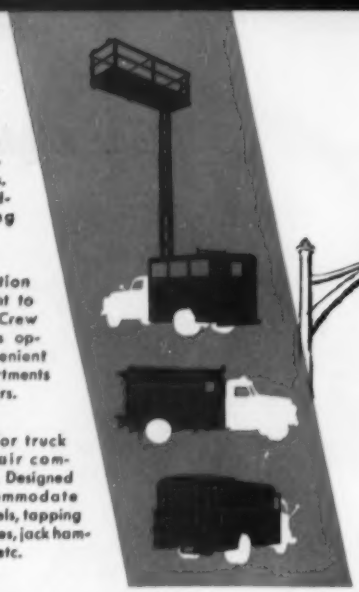
With HOLAN engineering "downstairs" your man on top need never worry about what's holding him up. The hydraulic system coupled with heavy-duty HOLAN construction offers the ultimate in safety and long life. Power is supplied from your choice of P.T.O. or a separate gasoline engine mounted on revolving base.

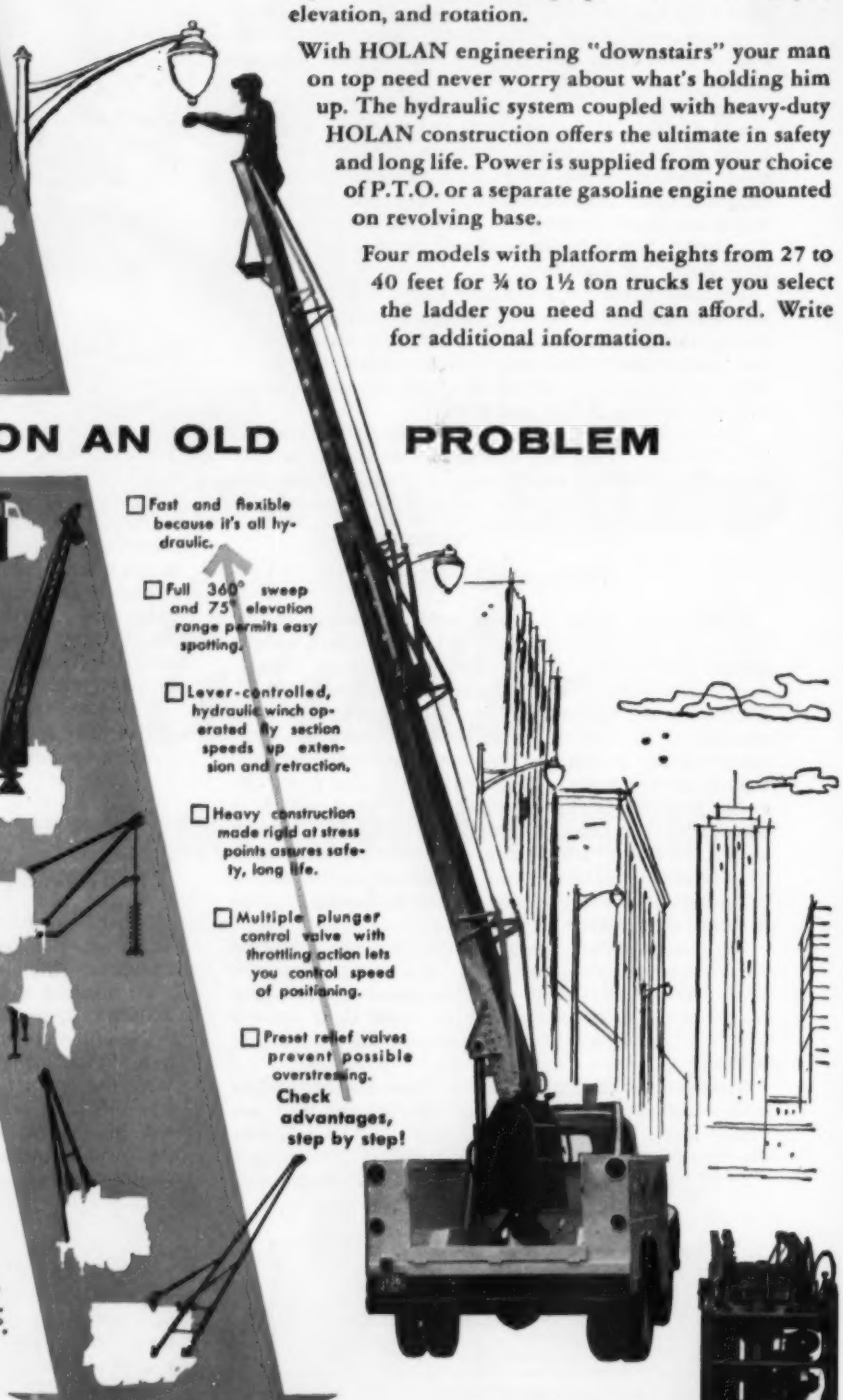
Four models with platform heights from 27 to 40 feet for ¾ to 1½ ton trucks let you select the ladder you need and can afford. Write for additional information.

Hydraulic towers with rotary, stationary, or transverse platforms. Exclusive box-girder telescoping mast.

Line construction bodies — light to heavy-duty. Crew compartments optional. Convenient tool compartments and drawers.

Bodies for truck driven air compressors. Designed to accommodate hose reels, tapping machines, jack hammers, etc.





NEW "SLANT" ON AN OLD PROBLEM

Service Bodies for chassis up to 1½ ton. Lengths, 72", 75", 84", 90" and 102".

Mechanical Ladders expertly engineered and counterbalanced for effortless handling. Maximum heights from 24' to 32'. Swings 360°; angles to 72°.

Portable mechanical and hydraulic earth borers with optional rotation.

Hydraulic jacks controlled from rear of truck. Rigid mounted or patented Holan self-stowing types.

Hydraulic derricks designed for front or rear mounting. Capacities up to 12,000 lbs.

Light-duty power operated derricks for front or rear mounting. Operating range of 146°.

☐ Fast and flexible because it's all hydraulic.

☐ Full 360° sweep and 75° elevation range permits easy spotting.

☐ Lever-controlled, hydraulic winch operated fly section speeds up extension and retraction.

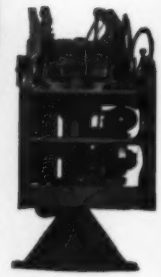
☐ Heavy construction made rigid at stress points assures safety, long life.

☐ Multiple plunger control valve with throttling action lets you control speed of positioning.

☐ Preset relief valves prevent possible overstressing.

Check advantages, step by step!

With ladder retracted over the cab, unit is compact and portable. Cam and roller type hold-down assures safety in transit.



Close-up of base houses complete hydraulic system. Optional gasoline engine provides adaptability where P.T.O. is not available.

HOLAN Thrift Line CORPORATION

EVEREE INN ROAD GRIFFIN, GEORGIA

WHERE WORK SIMPLIFICATION EQUIPMENT COSTS LESS

Series vs. Multiple Circuits

HERE is one of the major points of street lighting confusion. Probably the prime reason for confusion can be ascribed to the many attempts to resolve the relative merits of the two circuits—series and multiple. Many papers and forums have covered circuit details; therefore, we can bypass them here.

Confusion about these circuits may best be eliminated by a different approach—one that actually is plain every day common sense. Use the circuit that best suits your local conditions! This is advice given by S. Standley, product manager, Street Lighting, Line Material Co., Milwaukee, Wis., at a May 9-11 meeting of the Northwest Electric Light & Power Association in Salt Lake City, Utah.

The Pros and Cons

Here are some of the advantages and disadvantages of series circuits:

1. Simple electrical control and ease of extension.
2. Better photometric control of incandescent light sources because filaments are smaller.
3. Uniform light output of incandescents over their life because of constant current.
4. Isolated circuit assures better continuity.
5. Overhead wiring involves only one wire which gives neat appearance.
6. Current usually 3.2, 6.6, or 20 amperes.
7. High voltage may be a necessary point to consider for safety and for installation on joint-use poles. Safety has been improved by new luminaires that disconnect lamp and receptacle from line during maintenance.
8. Initial cost high.

Advantages and disadvantages of multiple circuits:

1. Load can be integrated with existing distribution system.
2. Photometric control of incandescent light sources more difficult than on series circuits because filaments are larger.
3. Individual photoelectric control practical and growing in popularity, but how to handle future blackouts should be considered.
4. Light output variable due to variable current.
5. Insulation failures easily located.
6. Low current requires long fragile filaments on 6,000- and 10,000-lumen incandescent lamps. As a result, photometric control is more difficult, and life expectancy of the lamp is reduced.
7. Voltage low—under 600 volts.
8. Low cost.

Fluorescents for Highways

KEEN interest shown by the cities in fluorescent lighting is extending to the counties and states.

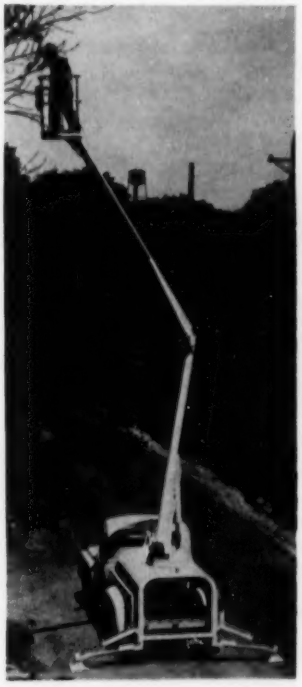
The mercury lamp to date has been the greatest single improvement in roadway lighting. It will continue to be a major factor in our nation's outdoor lighting programs. Now a street-lighting fixture which houses a 6-foot fluorescent lamp has been introduced. It is presently lighting an increasing number of streets, highways, and shopping developments.

With the sharp increase of new construction of highways and toll roads, the fluorescent street-lighting luminaire will gain momentum in the nation's highway program.

The recent introduction of new street-lighting fixtures to house a fluorescent lamp has great significance to our own business, as Jefferson Electric Company manufactures transformers to operate the lamp. We are working on a line of transformers to operate the fluorescent street lamp, and will introduce it this summer.

EDWARD J. BENNAN, *President*
Jefferson Electric Company
Bellwood, Ill.

A crewman effectively trims trees from a tower made by Aerial Towers, Inc., Fort Wayne, Ind.



Conflict Between Trees and Street Lights

A STREET Tree and Utility Conference was held in Cleveland, Ohio, March 3-4, 1955, at the Wade Park Manor Hotel. Sponsors were the Edison Electric Institute (Transmission and Distribution Committee), National Shade Tree Conference (Shade Tree Selection Committee), and the Illuminating Engineering Society (Street Lighting Committee).

Warren H. Edman, of the Holophane Company in Newark, Ohio, said, "Both street trees and street lighting are indispensable municipal assets. They need not conflict. Arborists select for planting, trees that fit available street space, soil conditions, room available for root systems, exposure, and minimum conflict with utilities. Pruning may increase street lighting one-third. One modification is to mount luminaires on longer mast arms. It increases construction costs but holds pruning to a minimum. It is well to avoid impairing lighting effectiveness with tree interference because most lighting systems are designed to meet minimum safety requirements."

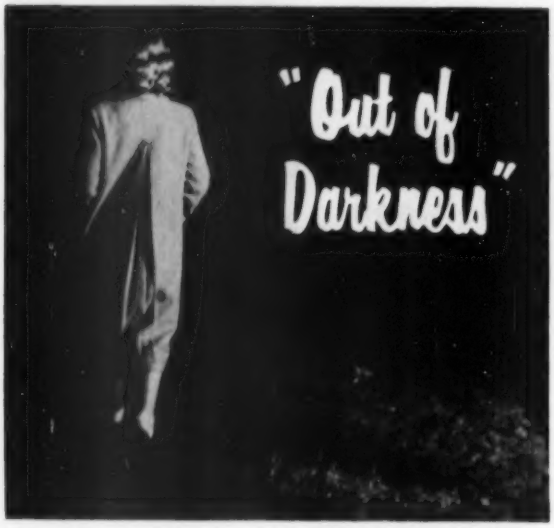
Considerations When Planting Trees

J. A. Sweeney, city forester of Toledo, Ohio, declared that street trees must fit the space where they are planted; that use of tall-growing trees along streets should be eliminated; that no street trees should be planted, until their life history in terms of future costs

for care and removal are studied; and that it is not wise to use a single kind of tree over a wide area.

R. Hickock, Connecticut Light and Power Company of Hartford, hoped that the joint tree-utility committee will present a workable street tree program to minimize the expense of the wire-tree conflict which now exists.

"Fundamentally," Mr. Hickock declared, "our tree program is two-pronged. First, to cut, trim, and prune our way out of difficulty from existing trees. Secondly, to promote a street tree planting policy, whether replacement planting or new planting, which will avoid tree-wire conflicts in the future. The ultimate success of the program rests basically on wide public acceptance."



Opening frame of G-E's new film, "Out of Darkness," wherein a girl begins a walk to the corner store. For what happened, borrow this 26-minute film from G-E, at Schenectady 5, N. Y.

A GREAT many traffic accidents and crimes can be prevented by modern street lighting. According to National Safety Council figures, in 1954 better than 50% of the 36,000 traffic fatalities occurred between dusk and dawn. It is said that 90% of the nation's streets are inadequately lighted.

Police officials in East Cleveland, Ohio, estimate that 174 nighttime traffic accidents were prevented during the year following relighting of many of the city's streets. And the Cleveland Police Department reports that, for a three-year period after the installation of modern street lighting, attacks and assaults on women dropped 44%; purse snatching, 30%; robberies, 27%.

After six years of good lighting on 50 miles of Indianapolis streets, night fatalities decreased about 20% in the face of a 50% rise in automobile registrations during the same period.

Good street lighting also helps to promote business. When Culpeper, Va., turned on new street lights, it also seated 10,000 celebrating people at what is said to be the longest banquet table in the world.

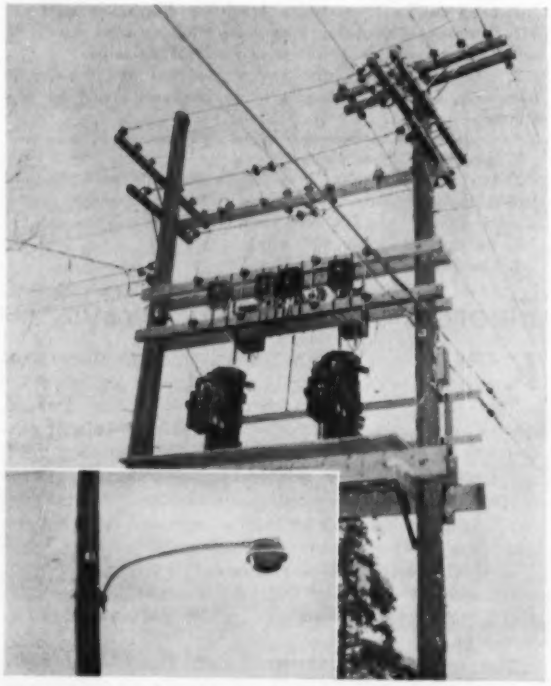
Many of the incidents portrayed in General Electric's new film, "Out of Darkness" are based on actual experiences. Fort Butler, the mythical community, is a name chosen at random. People and town are typical. This picture is an excellent advocate before civic bodies of any community, regardless of size, for promoting the safety and the welfare of their town and townspeople.

Many groups in many communities have been asking for a kit or literature or whatever will help others see the need for adequate lighting. "Out of Darkness" will help supply this visual proof. The film is available to any group that has an interest in community betterment and civic pride.

Mercurys at 30° Below Zero

ALASKAN winters have given Line Material's Uni-Ballast mercury-vapor systems their severest test in Fairview, a suburb of Anchorage. Installed by the Inlet Power and Light Company, which was recently acquired by the Chugach Electric Association, two new systems have operated successfully at 30° below zero and for 16 hours a day during January, which has six hours of sunshine on sunny days in that month.

On the day the systems were first energized—December 23, 1954—Fairview's temperature was 18° below zero. but the mercury-vapor lamps reached full brilliance within 11 minutes. Each system consists of thirty 400-watt, 20,000-lumen lamps in series. They illuminate 50 blocks of the business and residential districts. The lamps are in Ovalite luminaires hung on 6-foot brackets at 35 feet on wood poles. The lights are spaced at 300 feet along one side of the street.



The substation for the two Line-Material Uni-Ballast circuits at Fairview, Alaska, and an Ovalite fixture (insert).

PARK-O-METER

The one parking meter engineered to meet *every* metered-parking need in time and coin combinations . . . from six minutes to three twenty-four-hour days.

Park-O-Meter operates automatically on any one, two, three or all four commonly used coins . . . pennies, nickels, dimes, quarters in every sequence.

They are flexible, too. Simple adjustments permit changes in coin and/or time combinations when new conditions or parking regulations dictate changes.

To bring your parking meter system up to date . . . *and keep it that way* . . . install Park-O-Meters.

(Above) The Park-O-Meter installation at the magnificent new municipal airport facility at Phoenix, Arizona

A new look in traffic signals . . .

NEW G-E SIGNAL WEIGHS 45% LESS!

Here's the traffic industry's first major redesign in a generation: the all-new General Electric traffic signal!

JUST NOW AVAILABLE, this "new look" in signals is at once functional and attractive. Appearance, performance, strength, and ruggedness have all been enhanced, yet this signal weighs 45% less than existing models! This means economy, as costly mounting poles are no longer necessary, and less heavy wire and cable are needed for span mounting.

GET ALL THE FACTS on this revolutionary new signal! Contact your nearest authorized G-E traffic distributor, or write Section 453-66, Outdoor Lighting Department, General Electric Company, 1400 Western Avenue, Lynn, Massachusetts.

NOT A TRICK PHOTO! This young lady can easily manage the new, lightweight G-E signal. The one-way, three-color section shown here weighs only 12 pounds. Lightness means quicker, safer, and easier installation on your busy intersections.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Getting ODOR Complaints?

You can end them with

ORTHOSOLV*

The Chlorobenzene that MIXES WITH WATER

For Low-Cost, Easy Use!

Typical Applications of ORTHOSOLV

- Incinerator smoke
- Sewage plants
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- Land fill refuse disposal
- Refuse cans and trucks
- Dog kennels
- Rendering plants

NOTE: ORTHOSOLV can be safely recommended to private individuals or business concerns for the elimination of odor-causing conditions.

ORTHOSOLV is a concentrated, 100% active material which affords effective odor control even when diluted with as much as *1 part to 100 parts of water!*

It has been used and proven effective in controlling odors from a wide variety of sources in municipalities all over the country.

ORTHOSOLV solutions are *low in cost* and easy to use with street flushers, pressure pumps and hand sprayers.

If you have a particular odor problem, write us giving details and we will be glad to send you our recommendations for controlling it. For FREE LITERATURE and TEST SAMPLES** use coupon below.

Other Applications of ORTHOSOLV

Orthosolv is also a highly efficient water dispersible solvent-cleaner for the removal of:

1. Grease and tar from trucks and equipment
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Orthosolv can be removed with a water flush or a steam jenny. Orthosolv is safe. It has a high flash point and is not a fire hazard.

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☐ Orthosolv for Controlling Objectionable Odors
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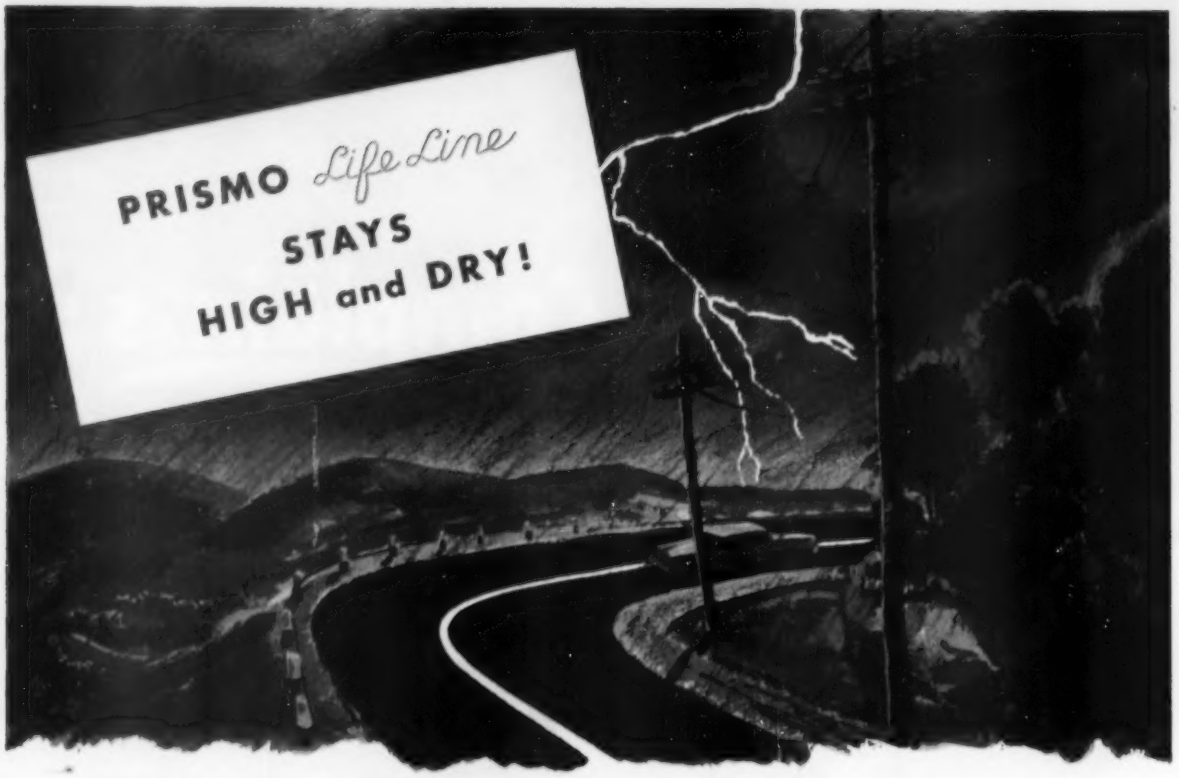
DO-7



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The fastest, most efficient and most economical way to handle any traffic or industrial marking project is to use Prismo's Contract Technician Service. This unique service offers you a "package" of factory-trained crews, specialized equipment, and the finest in marking materials. When you have a marking problem, let the Prismo contracting service handle everything for you. Contact Prismo at Huntingdon, Pa., for complete details.

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Only the remarkable Prismo LifeLine offers you a special, built-in "Moisture-Proofing" that keeps your markings gleaming with a dry-weather brilliance, even in the heaviest downpour! LifeLine's optical-glass spheres are chemically treated to resist water or condensation in storage, when applied to a surface, and while on the highway. When rain falls on Prismo LifeLine, the chemicals go right to work, repelling the water and maintaining that brilliant reflectivity. Get complete details—write for free copy of Catalog 354—TODAY!

1313

PRISMO SAFETY CORPORATION Huntingdon • Pennsylvania

Downtown Traffic Jams

A panel discussion sponsored by the Real Estate Board of Kansas City, Mo., in connection with the American Transit Association's regional meeting on March 4, 1955

Moderator

RICHARD B. FOWLER, Associate Editor in charge of Editorial Page, Kansas City Star.

Members of Panel

FRED M. LEE, Secretary, Macy's Department Store, Kansas City.

CHARLES F. CURRY, President, Charles F. Curry Real Estate Company, Kansas City.

WALTER H. BLUCHER, consultant, (formerly Executive Director) American Society of Planning Officials, Chicago.

DONALD C. HYDE, General Manager, Cleveland Transit System; President, American Transit Association.

Mr. Fowler: Our panel members represent four important elements of city life, deeply concerned with traffic congestion and its harmful effects. I'm going to start with our real estate man and ask him to tell us briefly the relationship between downtown and the rest of the community, Mr. Curry. . . .

Mr. Curry: First of all, it is important to realize that downtown didn't just happen. It is the result of proven convenience for the greatest number of people to transact their business. It is the heart of any city and its well-being is of vital concern to everyone in the community. When downtown's competitive position with businesses in the outlying areas is jeopardized, the whole structure of city finance is threatened, to the detriment of the entire city.

Mr. Fowler: I want to ask our city planner the *why* of the matter. Mr. Blucher, *why* is downtown's competitive position with suburban business endangered?

Mr. Blucher: Our metropolitan areas are growing, and the widespread move to the suburbs makes it understandable that some business should be lost by downtown. But the real villain is traffic congestion. Downtown streets are so clogged with automobiles that fewer people are willing to brave today's traffic jams, despite advantages.

Mr. Fowler: That's something our downtown merchant should be able to tell us about. Mr. Lee, suppose you cite for us briefly some of the advantages downtown offers?

Mr. Lee: A one-word answer would be: Compactness Downtown's compact arrangement, predicated on a large-volume, mass-market basis, offers maximum value per dollar spent. In the same few blocks in which a housewife can make price and quality comparisons unavailable to her in specialized suburban stores, she will find doctors, dentists, lawyers, opticians, banks, insurance companies, fine restaurants, theaters, and every kind of business or service, all in a short walking distance. Downtown offers not only shopping advantages, but also opportunity to combine several business and entertainment objectives,

Mr. Fowler: Now let's hear from our transit man. Mr. Hyde, can you offer any explanation for how we got into this nationwide traffic jam?

Mr. Hyde: In the tremendous postwar shift from public to private transportation—in our unreasonable and unrealistic insistence upon taking our cars with us wherever we go, even in our cities' most congested areas, the downtown district — we are losing our ability to attract the crowds of people so vital to downtown. Our downtown problem is due to neglect of a vital phase of urban efficiency, without which the rest cannot function; namely, freedom of access.

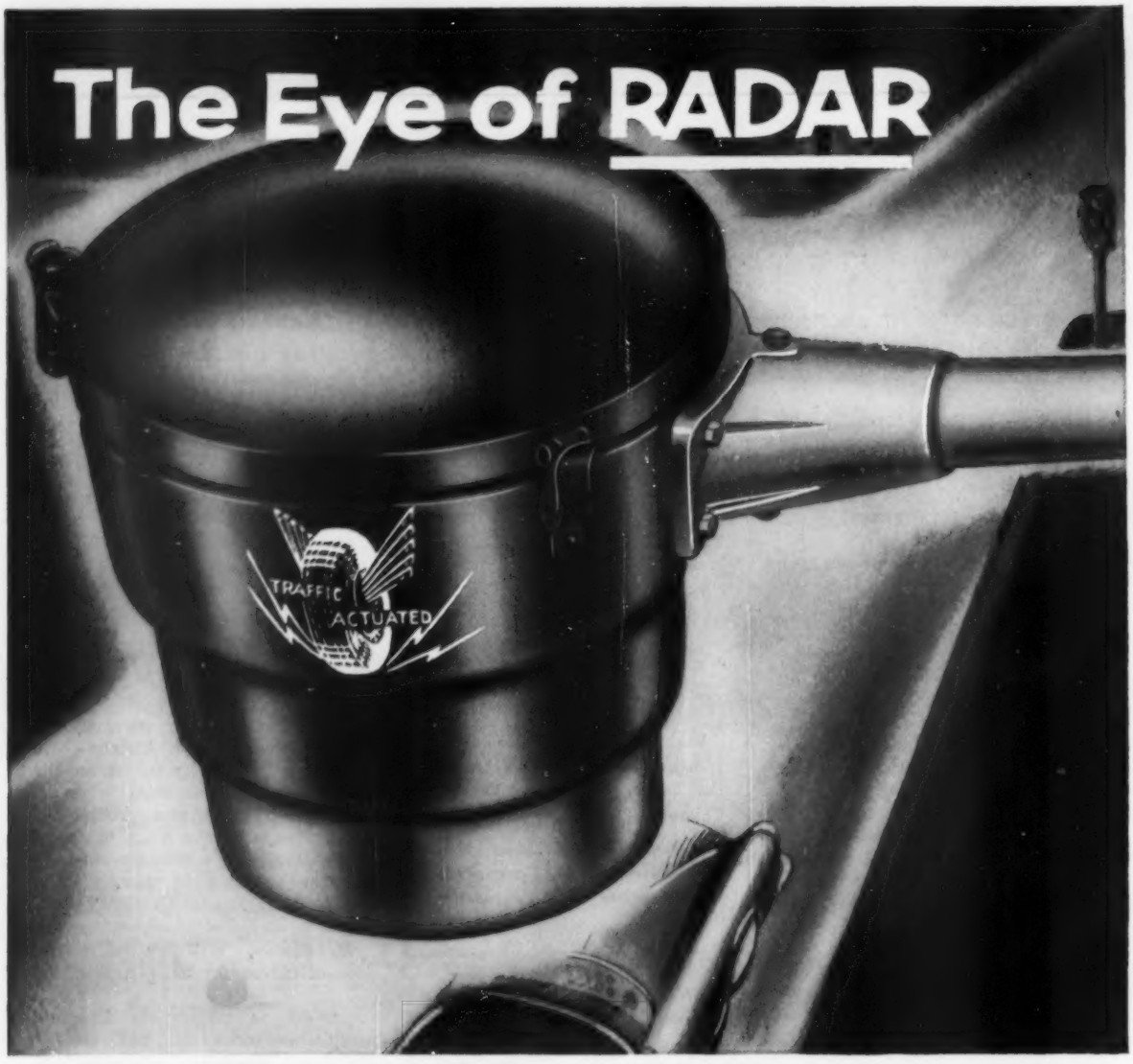
Mr. Fowler: Will you define freedom of access for us, Mr. Blucher?

Mr. Blucher: Access means, simply, the free and easy movement of people and goods. Not vehicles, not automobiles, not trucks, not streetcars, not buses, not taxicabs, but people and merchandise. Downtown today is more and more crowded with automobiles, and less and less crowded with people. It's crowds of people who make downtown values.

Mr. Fowler: That's something our retailer and real estate panel members should be able to tell us about. Mr. Lee, how would you say the community economy is affected?

Mr. Lee: In many ways. When traffic chokes off trade downtown, the strangulation hurts every one in town. The businessman suffers because customers have difficulty in getting to his store. In the retail business, many establishments have built stores in the suburbs as branches to their main stores. That is expensive, and it is unthinkable that the enormous investment our cities have downtown — in buildings, streets, utilities, etc.—is going to have to be duplicated, in part, in suburb after suburb, simply because we are failing to move people in and out of our strategically-located downtown area.

Mr. Fowler: That brings us back to you Mr. Curry,



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in the modern manner . . .

The Electro-Matic® RADAR VEHICLE DETECTOR presents an entirely new concept in detection for traffic-actuated control. Situated *above* the street, the magic eye of radar operates continuously, unaffected by weather or climate. Completely electronic, it is dependable, accurate, and versatile. With no need for pavement excavation, the Model RD-1 Detector is readily moved or adjusted to roadway changes. It's easily installed on bridges, or wherever installation of regular detectors previously had been difficult.

There *are* many locations where nothing else can do the job as well, or as economically as the RD-1. Write for the copy of the new Radar Detector Bulletin D-154 for details.

AUTOMATIC SIGNAL DIVISION

EASTERN INDUSTRIES, INCORPORATED

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and his linking of downtown's prosperity with the city's financial structure.

Mr. Curry: The stake of all citizens in downtown is much more tangible than mere civic pride. It's a financial stake in a downtown district kept free from strangulation by traffic. Downtown is where some 40% of all working people in a city are employed. Downtown properties pay a substantial part of all real estate taxes in the city—from a quarter to a third or more. Every home owner is partially subsidized by the central business district. Maintaining property values downtown is every citizen's concern.

Mr. Fowler: Let's get a measurement of the shift from public to private transportation. Mr. Blucher—

Mr. Blucher: Motor vehicle registration was about 31 million right after World War II and is now some 59 million, an increase of 90%. Transit, in the same decade, has lost 10 billion rides per year.

Mr. Fowler: Are those trends—upward for automobile use and downward for transit—continuing? Mr. Hyde—

Mr. Hyde: Yes, and further aggravating the situation is the fact that city streets comprise less than 8% of the nation's total highway mileage, yet carry two-thirds of all U. S. traffic.

Mr. Fowler: Now, Mr. Lee, as a retail merchant, do you find transit important to your business, or do you think our job of handling the crowds so necessary to downtown can be accomplished by providing enough parking space in the center of our cities?

Mr. Lee: No one is more aware of the importance of transit than the retailer. I think what we need is a better balance between public and private transportation—a better balance that will provide *both* parking facilities and better public transportation.

Mr. Fowler: Mr. Curry, we'd like to hear from you on this point.

Mr. Curry: I saw some figures recently showing that so far our cities have spent more than $10,000,000,000 improving streets and many, many additional millions for parking facilities. Yet our downtown traffic jams provide unimpeachable evidence that we are still far from solving the problem. It is of no use to talk of a better balance unless we put our money where our conversation is—to establish mass movement of people in and out of downtown.

Mr. Fowler: Mr. Blucher, would you care to comment?

Mr. Blucher: It is my studied conviction that we have been pursuing the wrong course for years in building more freeways and expressways and superhighways leading directly to the center of our cities. This has brought on greater and greater congestion and it is my firm opinion that even in this richest of all countries it is both physically and financially impossible to provide enough parking space to make it possible for all who may get the notion to do so to jump into their cars, drive downtown, and park in the heart of the city. We cannot endlessly widen streets at tremendous cost, and tear down useful buildings to make way for storage space for automobiles.

Mr. Fowler: Mr. Hyde, do you have any comments?

Mr. Hyde: Simple arithmetic shows that by leaving automobiles outside the downtown area, by using transit—at the very least for the inner portion of travel to the city's center—we *can* break up our traffic jams.

Mr. Fowler: Will you give us that arithmetic, Mr. Hyde?

Mr. Hyde: The average automobile downtown is occupied by 1.5 persons; a bus by 30 to 40 times as many.

Mr. Fowler: Mr. Lee, do you think it's possible to get people to switch back to transit in large enough numbers to relieve congestion?

Mr. Lee: I not only think it's possible, but feel it is something we must achieve as a community endeavor. I think that if transit is fast enough, and service frequent enough, people will ride transit—certainly for the downtown portion of their trips. On the basis of the figures Mr. Hyde gave us—an average occupancy of 1.5 persons per car downtown—for every three motorists won back by an improved transit service, we would be taking two cars off the street.

Mr. Fowler: Mr. Curry . . .

Mr. Curry: The all-day parker contributes to rush-hour traffic congestion, while the short-term parker, generally speaking, does not. More important, the all-day parker, who works downtown, monopolizes space we should be keeping available for those we are seeking to attract to the central business section so they may buy things and conduct other business there.

Putting Success in The Scramble System

AS FAR as we have been able to determine, the installation of the so-called "scramble" signal system at one of our downtown intersections in October 1948, was the first in the country. We have since expanded the system to include three additional intersections. These four points are in the very core of the central business area where pedestrian volumes are heavy, and a large percentage of motor traffic that enters these key intersections makes a turn after doing so.

Prior to the use of the signal system providing an exclusive interval for pedestrians, the heavy turning movements plus great numbers of pedestrians meant that in many instances one or even two lanes of traffic facing a green signal would be entirely blocked by pedestrians. The trial installation was simply to elimi-

TRENCHING 7 MILES of Indianola Avenue, a heavily traveled thorofare in Columbus, Ohio, called for a fast-moving job. The first step in opening the ditch was to line-cut and break a 7″ course of paving brick topped with asphalt. Two 80 lb. breakers, powered by a Jaeger "125" Roto Air-Plus, were used for this work.

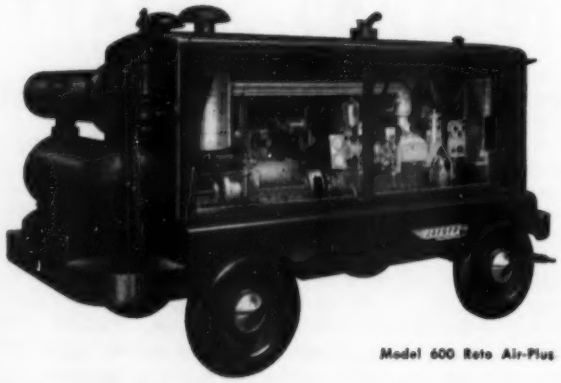
How Jaeger "125" Rotary speeds street work

On the above job, the instant-acting control of the Jaeger rotary, enabling it to maintain 100 lbs. minimum pressure under all air demands up to 125 cfm, made it possible to run two 80 lb. breakers at full efficiency, cutting and breaking an average of 400 linear ft. of 3 ft. wide trench (1200 sq. ft.) each 8 hours.

Because the higher efficiency of the Jaeger Roto enables it to operate at more economical engine speeds, fuel consumption on this job averaged only 1½ gallons an hour.

For big work, equally high efficiency is offered in the Jaeger Model 600 rotary. Jaeger reciprocating type compressors also continue to be available in all Jaeger "new standard" ratings with the exception of the 600 cfm size. For full information and comparative prices, see your Jaeger distributor — or send for Catalogs JC and JCR5.

For big work, Jaeger offers the Roto "600", illustrated below. It is the first fully efficient 600 cfm rotary compressor.



Model 600 Roto Air-Plus

THE JAEGER MACHINE COMPANY

505 Dublin Avenue, Columbus 16, Ohio

PUMPS • CONCRETE MIXERS • TRUCK MIXERS • LOADERS • PAVING MACHINES

Pedestrian period at 11th and Walnut in Kansas City, Mo.

nate this conflict and thereby increase the traffic-carrying capacity of one of our most congested intersections. We soon discovered, however, that the system was of value to pedestrians as well as to drivers.

The general public wholeheartedly endorsed the "scramble." We in the Traffic Department feel that the system has a definite place in traffic-control techniques. But it must be remembered that when time is borrowed from a fixed length of signal cycle to establish a pedestrian interval, the amount of green time available for each direction of vehicular movement is reduced. In our opinion, the "scramble" system should be used only when more vehicles can enter and clear an intersection with a short green interval and no pedestrian interference than can enter with a longer green interval when pedestrians are using the street also. The system cannot be used where any of the intersecting streets are so wide as to require a length of pedestrian interval almost equal to the entire signal cycle.

We have not expanded our system beyond four intersections since, in our opinion, there are surprisingly few intersections even in our downtown area where traffic and street conditions really warrant its use.

All our signals employing a separate pedestrian interval are interconnected into our central business district signal system, which is on a 50-second cycle. The amount of time the WALK signals are on varies from 12 seconds to 14 seconds, depending on the maximum street width at the particular intersection where they are in use. The WALK period, during which diagonal as well as straight crossings are permitted, is always followed by a five-second clearance interval during which time the pedestrian signals show DON'T WALK, and the vehicular signals for both directions remain red.

Fortunately, the system of one-way streets in our downtown area enables progression between adjacent signals to be maintained even if one or both of the control points has an exclusive pedestrian interval. Regular signal equipment is used, with the exception of the pedestrian signals themselves, which are especially made of neon tubing enclosed in a weather-tight case.

J. A. Hutter, *Director*
Traffic Department
Kansas City, Mo.

Alzak Reflectors for Traffic Signals

IN PRINCIPLE we agree with what Mr. Schwanhausser stated in The American City for May 1955 (See "Aluminum Reflectors for Traffic Signals," p. 158). We could hardly do otherwise, as we are the only signal manufacturer who has used and advocated the use of Alzak-finished aluminum reflectors exclusively for many years. We have recognized the advantages to be gained through the use of Alzak reflectors and, therefore, incorporated them in our signals as the standard reflector.

General Electric's recognition of this reflector confirms what we have been claiming for some time. The shape of Alzak reflectors, discussed by Mr. Schwanhausser, is important but only relative in determining over-all optical unit efficiency. That efficiency is determined by the combination of the reflector lens and light source.

Sun phantom is, as has been pointed out, a factor. It cannot, however, be controlled effectively with the reflector alone. The signal visors, signal lens, and reflectors all must be employed to eliminate sun phantom. In fact, the elimination of sun phantom in traffic signals today is not a reality.

Our long experience with the use of Alzak-finished reflectors has proved its superiority for traffic signal use, and we trust that this will not be the last of these discussions on the subject.

J. F. Williamson, Jr.
Southern Signals Inc.
Shreveport, La.

New York City Uses Radar Speed Meter Control

BEGINNING at 8 a.m. on June 14 radar speed meters will be used by the Police Department of New York City to enforce speeding violations on the parkways and expressways, according to Police Commissioner Francis W. H. Adams. The radar equipment is installed in radio motor patrol cars, and has been purchased from the Automatic Signal Division of Eastern Industries, Inc., of Norwalk, Conn. Signs (24 inches by 24 inches) reading SPEED CHECKED BY RADAR, will be posted on major expressways and parkways all over the city.

Initially, two radar control units consisting of two radio motor patrol cars each are being established. One car in each unit will contain a transmitter-receiver unit and a speed indicator together with a graphic recorder.

The two-car teams will work in the following way: The recording car will observe and record the speed of a vehicle traveling in excess of the authorized speed limit. The operator of the recording car will record the description and identity of the vehicle and transmit this information via radio to the second car of the unit which will be stationed one-half mile farther along the parkway. The latter vehicle, upon receiving the information from the recording car, will then halt the offending motorist.

Marcia Wittenberg, ten, and Robert Guhl, eleven, with Arnold S. Kunody, member of the Los Angeles Traffic Commission, add last touch to the running boy warning to motorists.

Pavement Cutout—School Crossing

A WHITE plastic sheeting, 10 feet by 10 feet, cut out in the figure of a running boy, has been affixed to the pavement at both approaches to the Dixie Canyon Elementary School in Sherman Oaks, by the Los Angeles City Traffic Commission. A yellow ball bonded to the street surface a couple of feet from the running boy's outstretched hands gives particular point to the symbol.

Los Angeles was chosen for the inaugural test because of its serious traffic problems; the Dixie school site was picked when a traffic count showed a daily volume of 43,000 vehicles with 3,000 cars passing through the crossing zone when the children arrive at the school and 2,500 when they leave.

This pictorial cutout, silhouetted starkly against the dark pavement, is impregnated with glass beads which give it a reflective quality and makes the figure more durable. This new kind of sign gives motorists prompt visual warning of a coming school crossing.

The Traffic Commission feels that children-at-play or school-zone signs posted at the curb give a false sense of security and thus encourage the dangerous practice of children playing in the streets. We intend to find out if "Big Joe" is an improvement over the word signs.

Electro-matic radar speed meters, made by Automatic Signal Division of Eastern Industries, Inc., check reflexes and slow-down time of motorists. If this experiment works, we intend to use this safety symbol at all school-crossing zones, and perhaps the figures of a woman and child in crossings at residential areas. The material is Plastix, a product of Prismo Safety Corp., Huntingdon, Pa.

LLOYD M. BRAFF, *General Manager*
Traffic Engineering Division, Los Angeles, Calif.

Camera Prevents Toll Fraud

THERE are about 140 ways by which collectors and truck drivers have cheated toll roads, bridges, and tunnels across the country, according to Benjamin Cooper, president of Taller & Cooper, Inc., Brooklyn, N. Y. To prevent this, the New York State Thruway Authority has placed an order for 218 automatic cameras for installation at entry and exit points along the cross-state highway.

Each camera takes clear impressions on supersensitive film in varying light and in fog. A photoelectric cell adjusts the lens opening. The camera has two lenses. One is trained on the approaching car. The other photographs a codework of dots and figures registered on the Remington Rand key punch machine.

One of the major possibilities of fraud on the New York Thruway, which led the Authority to seek new safeguards, arose from the issuance of permits, at $20 a year, with which passenger-car owners who are residents of the state can ride toll free. An obvious racket for a tempted toll collector would be to record a paying car as a toll-free vehicle and pocket the toll.

The camera shot of the front of the car, however, shows whether the vehicle carries the small metal shield which identifies the holder of the annual permit. The picture does not include the occupants of the car.

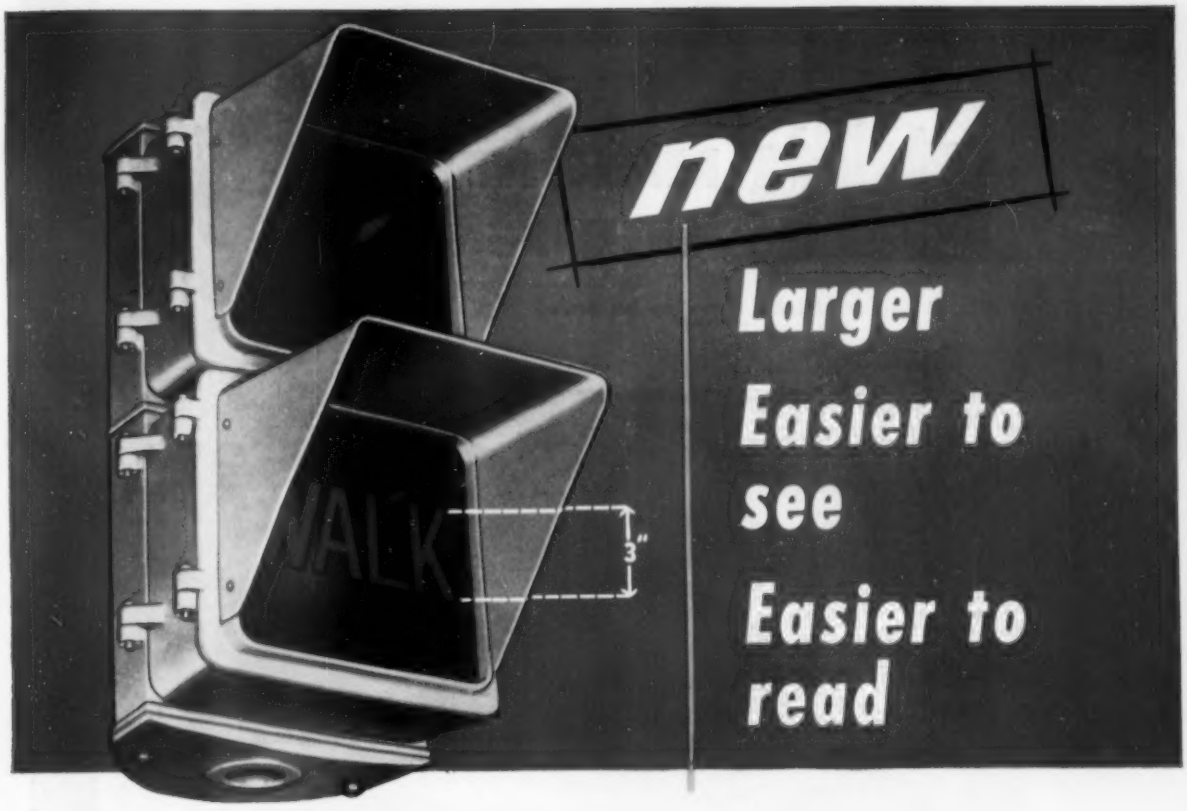
The data recorded by the second lens shows up in the lower left corner of the photographic print and includes the location of the interchange, lane of entry or exit, date and time, serial number of transaction, and type of vehicle (passenger-car, truck, number of axles with 10 different fee classifications). The combined picture is counted on to thwart or detect tricks.

The cameras are only part of a $2,500,000 contract with Taller & Cooper, Inc., for toll equipment.

Ode to a Traffic Light

Poor unbefriended, silent king
You stand alone, scorned and abused
While your service is being used
By fools who curse your needed rules.
You are a just but tactless king,
Red, yellow, green, no move is seen,
Yet your round tricolored crown
Glares down on all below,
Justice's balance fairly weighed,
Your command must be obeyed.

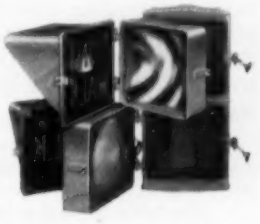
JAY A. CARSON, Outdoor Lighting Dept.
General Electric Co., West Lynn 3, Mass.



EAGLE PEDESTRIAN SIGNALS

The new Eagle Pedestrian Signal has been designed to increase legibility from greater distances, thereby reducing accidents and saving lives. Featuring letters that are a full 3 inches high! . . . easy to see across a wide street or from any off-angle. In addition, the sharp, square shape of the lens, can readily be distinguished from store signs or traffic lights. Distinctive lens *colors* reduce confusion with neon advertising signs. "Wait" or "don't walk" lenses are furnished in red or Portland orange; "walk" lenses in green or clear white.

Illuminated by a standard traffic signal lamp, the new Eagle Pedestrian Signal operates without transformers. It mounts on standard signal brackets with no special fittings or conduit required. One clear, separate message in each section eliminates complicated circuits. Eagle conversion kits are available for modernizing existing Eagle Signal equipment. Send for free bulletin.



New specially shaped reflector for complete corner-to-corner illumination. Extremities of letters are as bright as the enter area . . . little chance for misreading.

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EAGLE SIGNAL CORPORATION
Municipal Division
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Eagle equipment saves lives . . . saves time

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Municipal Division, Dept. AC-7
MOLINE, ILLINOIS

Please send free Bulletin A10-C containing full data on the new Eagle Pedestrian Signal.

NAME AND TITLE

MUNICIPALITY

FULL ADDRESS

Grotelite REFLECTIVE SHEETING

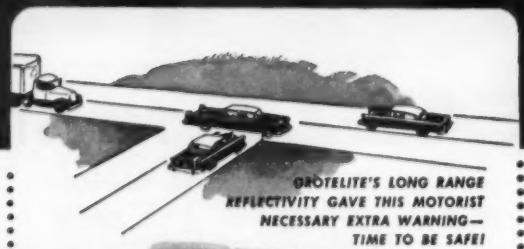
gives the motorist time to be safe!

STOP
AVERAGE STOPPING DISTANCE 132 FEET AT 40 M.P.H.
BRAKING DISTANCE
REACTION DISTANCE
ALTHOUGH GROTELITE STILL CLEARLY LEGIBLE, IT'S TOO LATE TO HEED WARNING OF ANY TYPE IN THIS DANGER ZONE.
GROTELITE SS CLEARLY LEGIBLE THROUGHOUT THIS DISTANCE!
GROTELITE SS VISIBLE HUNDREDS OF FEET BEFORE THIS POINT!

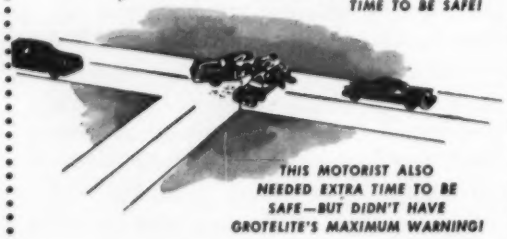
Too late to be warned, or *time* to be *safe* . . . Grotelite SS can make the difference! The traffic control sign reflectorized with Grotelite SS provides outstanding target value. It *alerts* and *warns* at the greatest distance from the point of danger. Through the blackest night, in any weather . . . Grotelite SS can be seen *farther*, seen *clearer*, seen *quicker* by the motorist!

Made For Maximum Warning!

Grotelite SS is the *improved Smooth Surface* reflex reflective sheeting. Formulated from *acrylic* (methylmethacrylate) plastic, it has over 26,000 optical lenses per square inch. Strongly reflects light beams directly to their source. Only Grotelite SS offers such long range brightness and clearness.



GROTELITE'S LONG RANGE REFLECTIVITY GAVE THIS MOTORIST NECESSARY EXTRA WARNING— TIME TO BE SAFE!



THIS MOTORIST ALSO NEEDED EXTRA TIME TO BE SAFE—BUT DIDN'T HAVE GROTELITE'S MAXIMUM WARNING!

GROTELITE SS is available in precut sheets for easy application. Also available on finished signs of all types. Four colors: yellow, red, green and silver (white).

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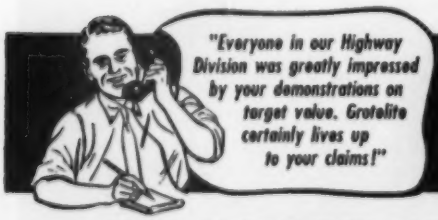
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Does your city's plumbing code permit home builders to realize

New Economies with Copper Drainage Tube?

Copper wastes and vents with soldered fittings were used in a line at the Manhasset (N. Y.) Medical Center Hospital.

By ARTHUR I. HEIM
Research Engineer
Copper & Brass Research Association *

EARLY this year, a new series of copper tube designed especially for sanitary use — soil, waste, and vent lines of buildings — was announced. Although copper tube for drainage is not new, this economy-producing series is of interest to homeowners, to those who formulate or administer plumbing codes, to the plumbing industry at large, and to engineers, architects, contractors, and building officials. Now a lighter weight copper tube, in sizes generally used for drainage systems, is available and plumbing code authorities should consider its inclusion in code designations of approved materials.

In the past, the only copper tube supplied commercially for drainage was available in three wall thicknesses: Type K (underground service lines, severe service conditions); Type L (general plumbing and heating, interior gas, steam and oil lines); and Type M (general low-pressure applications—waste, venting, and interior drainage).

Research and experience plainly indicated that Type M was heavier than was actually needed. Sound engineering practice called for a lighter weight series that would be adequate for the job and could be marketed by fabricators at a considerable saving to home builders. Research at the University of Illinois revealed that copper tube performance exceeds even the most conservative estimates. Consequently, the new drainage series was placed on the market.

The first consideration in designing the new tube was safety. What was needed was a tube that would last as long as the house itself under normal conditions. With that in mind, the curves obtained from the test results were projected for 100 years and the desired minimum wall thickness was read from the curves. But corrosion and pressure were not the only features involved. A wall thickness that could be manufactured economically was required, and handling in-process, transportation, and installation all had to be evaluated. The combination of these factors resulted in the new Copper Drainage Tube.

* Copper & Brass Research Association, 420 Lexington Ave., New York 17, N. Y.

STANDARD SIZES AND WEIGHTS OF COPPER DRAINAGE TUBE

Standard Size (in inches)	Outside Diameter (in inches)	Wall Thickness (in inches)	Theoretical Weight (pounds per foot)
1¼	1.375	.040	.650
1½	1.625	.042	.809
2	2.125	.042	1.07
3	3.125	.045	1.69
4	4.125	.058	2.87
5	5.125	.072	4.43
6	6.125	.083	6.10

Amending Existing Codes

While many existing plumbing codes provide for the use of copper tube for drainage, a few do not indicate a minimum wall thickness. A few even require the use of Type L Copper Water Tube as a minimum when copper is used. In most cases, existing codes call for Type M as the minimum. Now these codes can be amended to use the new Copper Drainage Tube especially designed for the service.

To amend a code to permit the use of the new tube for waste, vent and soil lines, all that is usually necessary is only to substitute the

(Continued on page 167)

Quiet Please!

The Mayor is having a dream

. . . a pleasant, practical dream about civic improvement; for the Mayor is a practical man—intelligent, progressive, sincerely proud of his town. He wants what is best for the community. And right now he's dreaming of the best thing for any community . . . USS NATIONAL Tubular Steel Poles.

NATIONAL Tubular Steel Poles serve the public in many ways. Their slimness keeps them from being visual obstructions—traffic hazards. As lighting poles they are unexcelled. When used for trolley wires, their strength easily supports the tightest lines, even though steel poles need not be spaced nearly as close together as bulky, old-fashioned standards. And the upkeep on steel poles amounts to practically nothing—an occasional coat of paint at most.

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If you contemplate the purchase of parking meters, whether it be a new installation, adding to your present meters, or replacing obsolete meters, it will pay you to contact MI-CO. They have much to offer for your parking meter dollars.

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Zoning and Planning Notes

Edited by NORMAN WILLIAMS, Jr.

Esthetic Zoning

WISCONSIN. *State* ex rel. *Saveland Park Holding Corporation* v. *Wieland*, 69 North Western (2nd) 217 (Supreme Court, March 8, 1955).

Since 1946 a separate local ordinance in the Village of Fox Point required, as a prerequisite for a building permit for any proposed structure, that a local "Building Board" should find

> "that the exterior architectural appeal and functional plan of the proposed structure will, when erected, not be so at variance with either the exterior architectural appeal and functional plan of the structures already constructed or in the course of construction in the immediate neighborhood or the character of the applicable district . . . as to cause a substantial depreciation in the property values of said neighborhood within such applicable district."

The Village, with an area of about two and a half square miles, was used and zoned almost entirely for single-family residential use, with a small business district and a small institutional district providing for community facilities. The ordinance was challenged on the ground that neither esthetic considerations nor the protection of property values, taken alone or jointly, were sufficient to uphold regulations under the police power. However, the Court upheld the regulation.

After a long discussion and the citation of many irrelevant cases, the Court held that

> "the protection of property values is an objective which falls within the exercise of the police power to promote the 'general welfare,' and it is immaterial whether the zoning ordinance is grounded solely upon such objective or that such purpose is but one of several legitimate objectives. Anything that tends to destroy property values of the inhabitants of the village necessarily adversely affects the prosperity, and therefore the general welfare, of the entire village."

It was pointed out that, while the ordinance referred to esthetic considerations, it explicitly applied only in case of a threatened depreciation of property values. Moreover, the Court referred to the recent Supreme Court opinion on redevelopment in the City of Washington*, upholding the use of esthetic considerations in connection with eminent domain proceedings, as indicating that zoning might now properly be concerned with such considerations.

The ordinance was also challenged on the ground that no real standards were provided to guide the Board's discretion in administering the ordinance. However, for some reason this part of the decision was focused not upon the subjective difficulties of evaluating differences of "architectural appeal" or "functional plan," but upon the words "neighborhood" and "substantial"; and the Court held that both of these were sufficiently definite.

After the decision, the ordinance was amended so as also to forbid "look alike" houses. The result is that new buildings in Fox Point must neither look alike, nor too different from, other buildings nearby.

This decision clearly marks an important step in the law dealing with the use of the police power to regulate esthetics. Yet—quite apart from the merits of this case—the legal analysis can only be described as extremely superficial.

Particularly disappointing is the treatment of the critical point—the discussion of whether an alleged effect on property values is a proper subject for governmental action, and particularly the relation of this to esthetic considerations. The opinion treats these two—property values and esthetics—as if they were two independent variables. Actually, an alleged effect upon property values is merely an indication that there may be some factor present which some people may dislike; the factor involved might be industrial fumes, increased traffic, esthetic considerations—or the presence of some unpopular ethnic group. Whether or not governmental regulation is proper, depends upon which factor it is that is allegedly influencing property values. As for the last example — unpopular ethnic groups—it is settled law that such action is inappropriate; and in most American decisions considerable doubt has been raised about regulations based upon esthetic considerations. Of course no one doubts that protection of property values is an important matter, not only to individual property owners but to local communities; but it is impossible in a serious legal analysis to consider property values without looking into what is allegedly influencing them.

The superficiality of the legal discussion in this opinion is indicated by the type of legal decision cited. Most of the citations refer merely to general statements that zoning is concerned with property values, in decisions concerned with wholly different problems and factors than were involved here. Most striking is the omission of any reference to the most important relevant recent decision — *West Palm Beach* v. *State* ex rel. *Duffy*, 158 Florida 263, 30 Southern (2d) 491 (1947)—in which the Florida Supreme Court invalidated a requirement that new buildings must be substantially equal to the adjacent buildings in appearance, area and height, on the ground that this was too vague and also did not bear any relation to any lawful purpose of public regulation.

In brief, this Wisconsin opinion never comes near the very real problems involved in esthetic zoning. There is widespread agreement that American cities leave much to be desired in their appearance, and that planning for their future should be able to include certain measures to improve their appearance. What is needed is serious analysis of some of the problems involved, such as the following:

1. Since tastes vary as to what is beautiful, how is it possible to set up more or less objective tests to guide the administration of such regulations? Does this mean that such regulations will be limited to setting a low minimum standard, and preventing only the most ugly intrusions? —or what? This involves legal considerations on the delegation of power and void-for-vagueness rules.

2. If expert boards of review are set up, these tend to be dominated by elderly retired architects—the only ones who have plenty of time to serve—and thus often operate primarily to prevent modern architecture. Thus such regulations are not necessarily forward-looking in their results.

3. Is it possible to develop criteria to identify those situations when supposedly esthetic regulations are in fact designed to keep certain types of people out of an area?

Only when such problems are faced honestly can esthetic zoning be placed on a sound constitutional basis. And it can hardly be argued seriously that this Wisconsin decision contributes to understanding of these problems.

* Berman v. Parker, 348 U. S. 26 (1954).

Modification of Pre-Zoning Restrictions

MINNESOTA. *Burger* v. *City of St. Paul*, 64 North Western (2d) 73 (Supreme Court, February 26, 1954).

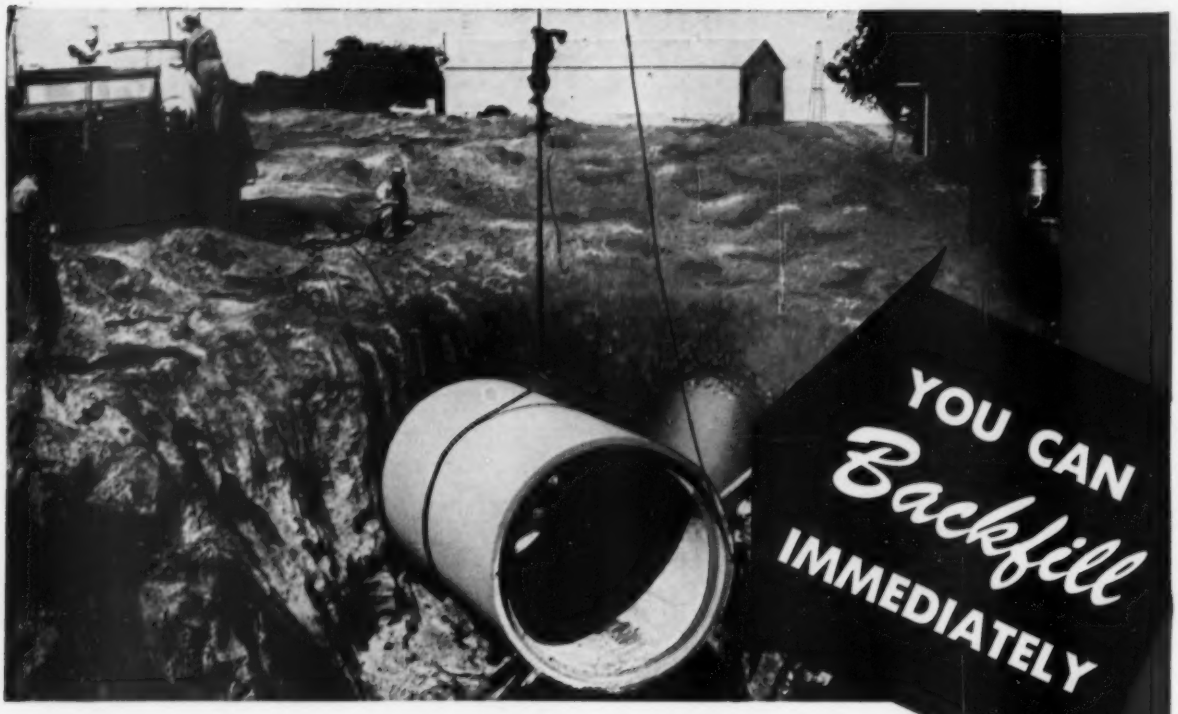
Before the development of comprehensive zoning ordinances based on the police power, a Minnesota statute provided for the creation of restricted residential districts, by municipal condemnation of the right to use property for other purposes, and special assessments on those benefited in order to pay for the condemnation; and such districts were thereupon limited to 1- and 2-family houses. A much later statute provided a procedure for conversions to accommodate not more than 4 families. In this case, involving a challenge to such a conversion, the Court held that the rights of property owners under such a set-up were similar to those arising under restrictive covenants, and constituted negative or equitable easements in the adjoining land. While the condemned rights were held by the City, the Court decided that these were held in trust, and that the property owners were in the position of beneficiaries of the trust.

Miscellaneous Minor Case

NEW YORK. *King* v. *Incorporated Village of Ocean Beach*, 132 New York Supplement (2d) 879 (Supreme Court, May 11, 1954).

In this decision, a village ordinance forbade any structure on a large tract of beach and sand dunes, on the ground that buildings in these areas would make it impossible to protect the village from destruction by storm. The Court refused to grant a judgment on the pleadings that the ordinance was invalid, and stated:

> "The legislation here involved is indeed extreme, but not more so than the facts asserted in its justification."



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Since there's no adhesion factor—Tylox joints seal mechanically—it's not necessary to protect the line from shock or backfill loads . . . or even from muddy trench conditions. When the pipe is shoved home, the Tylox Gasket "packs" the joint's annular space under *compression.* The natural resilience of the rubber *keeps* the joint tight. Neither immediate backfill, nor presence of water in the trench affects the seal.

Tylox is made of a specially compounded rubber which resists sewage and industrial waste acids and alkalies, and is virtually ageless. Under ground, and under compression, it outlasts the pipe. It can never shrink or crumble, to leave crevices in the joint for entrance of roots or ground water.

When planning your next sewerage or drainage project, specify Tylox jointing gaskets to speed pipe jointing, eliminate backfilling delays, and to assure a line that is "leakproof for life."

Write today for complete specification data and literature on TYLOX Pipe Jointing Gaskets.

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A Cement tongue and snap on TYLOX gasket.

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Oklahoma City's orderly plant design: (left to right) Multdigestion systems; sludge lagoons; primary clarifiers; primary trickling filters; secondary clarifiers (between the main building); secondary filters; final settling tanks (upper right).

Oklahoma City's Southside Plant

A two-stage trickling-filter, sewage-treatment plant deals with a strong sewage and protects badly needed water resources

THE "south side" may mean many things in many places. In the southwestern municipality of Oklahoma City (Okla.), it means a new sewage-treatment plant that protects the purity of the small but important North Canadian River. To the people of this area water is too important to be spoiled by pollution, so that the 25-mgd (million gallons daily) Southside plant is an important asset.

To provide thorough treatment, the plant uses an unusual combination of trickling filters in primary and secondary stages. The activated-sludge process, used in the city's Northside 10-mgd plant, did not seem practical because of the shock pollution loads contributed by local packing houses. The sewage will average 375 ppm (parts per million) as BOD and 500 ppm as suspended solids. The plant serves a population of about 175,000 people, but packinghouse and industrial wastes raise the "equivalent population" to about 460,000.

Sewage enters the plant 18 feet below grade where four Worthington horizontal Mixflo pumps lift it 35 feet to flow through the rest of the plant by gravity. Each pump is rated at 20 mgd against a 40-foot head. Worthington 210-hp gas engines supply the power for these pumps using either nearby natural gas or sludge gas generated in the digesters. The engine jacket water supplies heat to maintain optimum operating temperatures in the digesters.

Solids Macerated

Before the sewage enters the wet well, it passes through four Chicago Pump Company Comminutors that macerate the large solids for easier handling. Each Comminutor can receive sewage at the rate of 11 mgd. The four pumps discharge the sewage through a Parshall flume that measures the flow. Should the flow become too great, the flume activates a bypass that permits the storm flow to be discharged without treatment.

However, this happens only rarely. Usually, the sewage first passes through two Dorr Detritors that remove the inorganic solids. These are 22 feet square and can each handle 25 mgd. Washed grit is used for fill on plant grounds.

The grit-free sewage next passes through four Dorr Squarex primary clarifiers which provide two hours of detention at a flow of 50 mgd. They have an overflow rate of 1,000 gallons per square foot per day, and remove one-third of the suspended solids and BOD.

The settled sewage then proceeds to the first of four trickling filters, designed to receive 4,330 pounds of BOD per square foot per acre-foot per day A set of Dorr

Down time can upset *any* schedule. Best way to avoid it is to insist on genuine CAT* parts every time. Then you're sure of getting parts that are made to the latest design, precisely manufactured of the right materials, rigidly inspected and tested.

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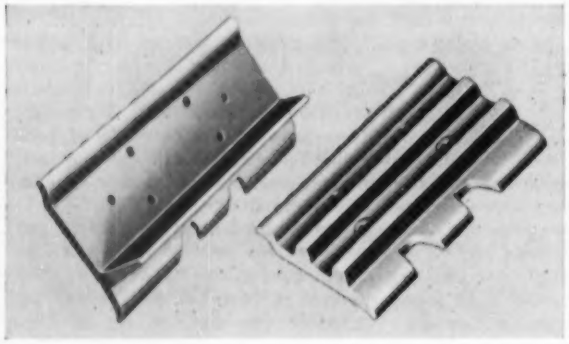
"If the shoe fits, put it on," can often be bad advice. Other makes of track shoes may *fit* all right, but how will they *wear?* It took years of research and field testing to develop Caterpillar's exclusive hardening process which makes genuine Cat shoes wear up to 75% longer than most others. The Cat shoes pictured here (a standard shoe, and a double grouser shoe for roughest rock conditions) are made of specially rolled high-quality steel sections—with a yield strength of 100,000 lbs. per square inch. With a substitute track shoe: who can be sure?

The difference on the job: with genuine Caterpillar-built track shoes you can count on longer work life, there's less replacement, and you get better performance under any working conditions.

With substitute parts: who can be sure?

Better get genuine Caterpillar parts every time.

Caterpillar Tractor Co., Peoria, Illinois, U. S. A.



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reaction-type distributor arms applies the sewage to the filters. When the sewage leaves the filters, its BOD averages 60 ppm.

Since this is not sufficient purification to prevent pollution of the river, the plant is designed to recirculate a portion of this sewage with the help of three Worthington Mixflo pumps powered by 175-hp Worthington engines using sludge gas for fuel. Each of these pumps is rated at 20 mgd at a 30-foot head. The remainder flows to the intermediate circular clarifiers which use Dorr sludge-removal equipment and provide a detention period, at a flow of 25 mgd of 1¾ hours and a surface loading of 1,000 per square foot per day. It also provides a weir overflow rate of 22,100 gallons per day per foot of weir. Sludge from these clarifiers flows by gravity back to the raw-sewage wet well.

The sewage then passes through the second set of eight filters, each with a 6-foot rock depth and measuring 186 feet in diameter. Dorr rotary distributors apply the sewage to the filters at a rate of 5 mgd per acre per day. The filters can receive 416 pounds of BOD per acre-foot per day. The filtered sewage then passes to final settling tanks salvaged from the old plant and reconditioned. The detention time here is two hours, and the overflow rate is 760 gallons per square foot per day. Weir overflow rate is 15,625 gallons per day per foot. Sludge collected in these tanks is pumped back to the raw-sewage wet well. The purified effluent flows to the North Canadian River.

Digester Gas Production

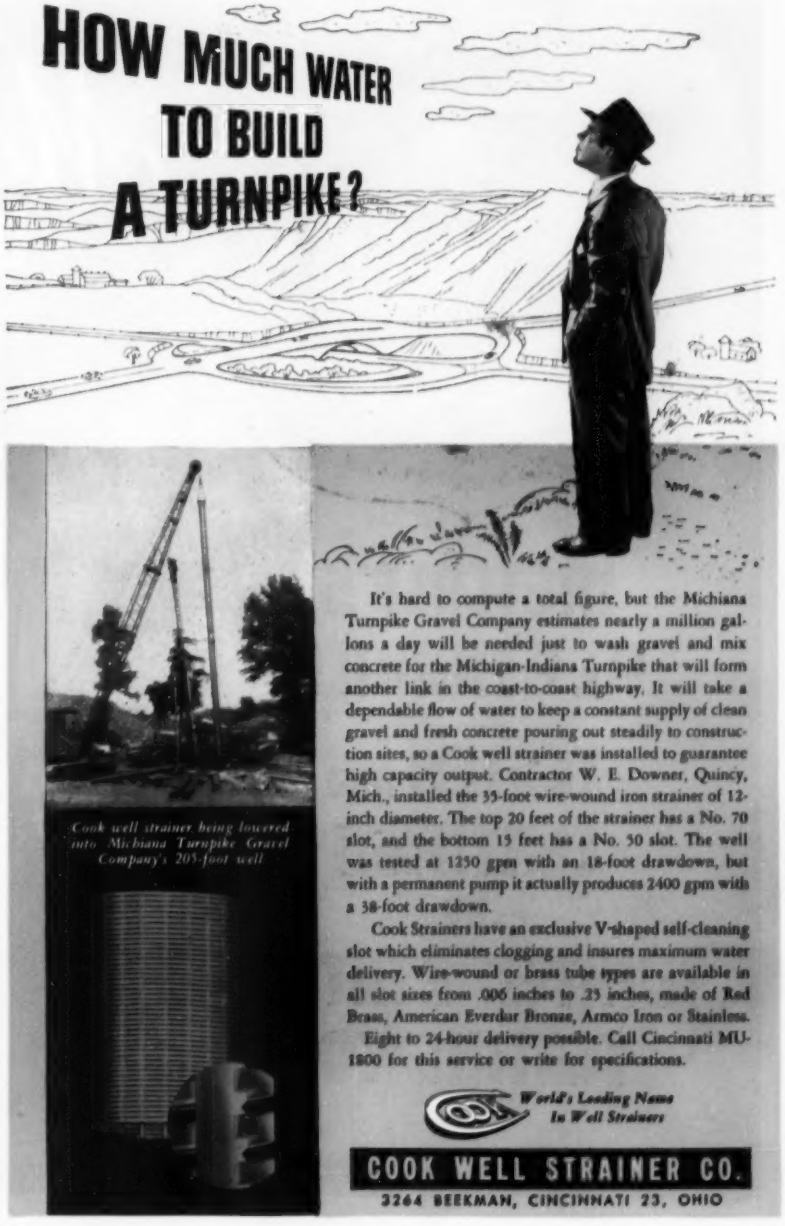
As indicated, the sludge is collected in the primary settling tank and removed to the eight digesters. Each tank is 90 feet in diameter; six have fixed domes and are used for primary digestion, the remaining two have Dorr gas-holder covers and provide secondary digestion. Each of these can store about 100,000 cubic feet of digester gas against a pressure of 10 inches of water.

The sludge produces about 600,000 cubic feet of gas per day which is passed through a Connelly Iron Sponge unit to remove hydrogen sulphide and make it noncorrosive for use in the gas engines in the plant. All digested sludge, except for 25% that is reserved for municipal use, is sold to a private concern that markets a processed fertilizer.

The plant was designed by Benham Engineering Company of Oklahoma City. It is managed by Morrison Cunningham, superintendent of water and sewage treatment, and a past president of the American Water Works Association.

Kansas City, Mo., Honors Long-Term Employees

OVER 200 long-term employees of the City of Kansas City, Mo., were guests at a recent special reception and dinner held in their honor by Mayor William E. Kemp, the members of the City Council, City Manager L. P. Cookingham, and various department heads. Some 117 of the guests had completed 10, 15, 20, or 25 years of continuous employment by the city. An additional 90 employees had completed more than 25 years of service and were thus members of the Twenty-Five-Year-Club. Service awards and certificates were presented to each of the honored employees.


HOW MUCH WATER TO BUILD A TURNPIKE?
Cook well strainer being lowered into Michiana Turnpike Gravel Company's 205-foot well
It's hard to compute a total figure, but the Michiana Turnpike Gravel Company estimates nearly a million gallons a day will be needed just to wash gravel and mix concrete for the Michigan-Indiana Turnpike that will form another link in the coast-to-coast highway. It will take a dependable flow of water to keep a constant supply of clean gravel and fresh concrete pouring out steadily to construction sites, so a Cook well strainer was installed to guarantee high capacity output. Contractor W. E. Downer, Quincy, Mich., installed the 35-foot wire-wound iron strainer of 12-inch diameter. The top 20 feet of the strainer has a No. 70 slot, and the bottom 15 feet has a No. 50 slot. The well was tested at 1250 gpm with an 18-foot drawdown, but with a permanent pump it actually produces 2400 gpm with a 38-foot drawdown.
Cook Strainers have an exclusive V-shaped self-cleaning slot which eliminates clogging and insures maximum water delivery. Wire-wound or brass tube types are available in all slot sizes from .006 inches to .25 inches, made of Red Brass, American Everdur Bronze, Armco Iron or Stainless.
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60-Second Pictures

(Continued from page 130)

Mondano, calls Polaroid pictures "the clincher" for his court litigations. He borrows Bill Hendry's Polaroid Speedliner model to have "black and white" evidence for warning building owners and for supporting the building inspector's decisions to condemn structures.

Often it's the day before a court date when the inspector learns that a property owner has retained a lawyer to fight the city's condemnation of his building. Inspector Mondano goes right out and shoots the building inside and outside, retaking on the spot until he has the evidence he wants—a general view, collapsing eaves, rotted and shaky beams, treacherous stairways, junk piled ceiling high. As he puts it, "the defense attorney can't deny what's in the pictures I took hours earlier."

The Aldermen and I decided to eliminate a trash-disposal expense late in 1953. The city was paying $500 a week to a contractor to empty trash barrels and bring the waste to a dump outside of Chelsea. Our plan to cut costs was to dump within the city limits.

There were cries that a dump in Chelsea would create dirty, sightsore, and unsanitary conditions. A couple of my aides made frequent trips for several weeks to the Chelsea dump and brought back closeups of the city's scientific covering of waste with fly-ash and then a layer of stones. The critics were soon pacified. They saw that the reduction in municipal dumping expense was not at the cost of acquiring disagreeable odors and health hazards.

Once the City Hall switchboard was flooded with calls from residents of a particular street. Following a heavy snowfall, city plows had been out in full force for hours, but their street had not been cleared. A member of my staff departed with camera to investigate. Less than two hours later, clerks were mailing Polaroid prints. When the postman made his next deliveries along the "complaint" street, several of the residents received clear pictures of their own parked automobiles preventing city plows from doing a good snow removal job.

New Regional Plan Commissions Authorized

FOUR states and at least half a dozen metropolitan areas have taken action this year to set up commissions that will plan on a regional basis.

The American Society of Planning Officials reports that the Arkansas, Indiana, Maine, and Massachusetts legislatures passed metropolitan planning bills, either permitting the establishment of metropolitan planning agencies or requiring that they be set up. The regional areas currently concerned are in Colorado, Arkansas, South Carolina, Massachusetts, Michigan, and New York.

The ***Arkansas*** law enables planning agencies of cities and counties whose planning jurisdictions adjoin to set up metropolitan planning bodies if they want to. ***Indiana's*** law requires the establishment of a metropolitan planning department for Marion County and Indianapolis. It also transfers the functions of the city, county, and town planning commissions in the county to the metropolitan agency.

The ***Maine*** law permits towns, cities, and counties to set up regional planning commissions, which are to prepare regional plans and assist in planning for individual towns or cities involved.

The ***Massachusetts*** law provides that cities and towns can vote to establish a planning district, but says that a regional planning agency cannot be set up unless the division of planning of the state's Department of Commerce determines that the group of towns and cities considering such an agency will constitute an effective region for planning purposes. The Massachusetts governor has also proposed that the legislature take action to establish a metropolitan planning body for the Boston area.

Other states that considered metropolitan or regional planning bills during current sessions were Minnesota, Maryland, Pennsylvania, and Wisconsin. In Minnesota and Maryland, the legislatures adjourned before taking final action on proposals for regional planning agencies. In Wisconsin, a similar bill was still pending late in the session. In Pennsylvania, a revision of the state's enabling legislation for regional planning commissions has been drafted with the expectation that it will be introduced before the 1955 session adjourns.

Action at the Local Level

At the local level, metropolitan planning action has been taken by a number of cities this year, according to the Society. The Inter-County Regional Planning Commission has been organized for ***four counties in the Denver, Colo., area*** — taking in Denver, Jefferson, Arapahoe, and Adams counties. The commission will prepare a master plan and act in an advisory capacity to local planning agencies.

Following passage of the Arkansas enabling act, the Little Rock-Pulaski County area set up a 19-man metropolitan area planning commission, called *Metroplan*. It covers Little Rock, North Little Rock, Jacksonville, and Pulaski County.

In the ***Columbia, S. C.,*** area, mayors of five of the six cities—Columbia, Eau Claire, Cayce, West Columbia, and Forest Acres—have approved in principle the idea of setting up a metropolitan planning board.

The ***Cape Cod, Mass.,*** area is also taking steps to initiate regional planning activities. Two of the 15 communities in the area, Bourne and Harwick, have appropriated funds for regional planning work and a meeting of the group has been scheduled.

Monroe County, Mich., voted to become a member of the Detroit Metropolitan Area Regional Planning Commission. The county will pay $3,100 a year for its share of costs and $15,000 to partly compensate for the work other counties have done since the commission was established in 1947.

In the ***New York City region,*** the Regional Plan Association has suggested that Connecticut's Fairfield County, which includes such cities as Greenwich, New Canaan, Stamford, Darien, Norwalk, and Wilton, take part in New York regional planning.

Growth of Municipal Financing

STATES and municipalities in the United States and in U. S. territories and possessions have increased sales of long-term loans from $1,203,557,909 in 1946 to $6,968,641,896 in 1954. Short-term bonds and notes during the same period increased from $740,844,100 to $3,350,234,995, according to figures released by *The Bond Buyer*.

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WITH Cataflex Reflective Coating Kits you can SAVE UP TO 90% on your sign reflectorizing costs in your own sign shop—no special equipment needed—no special training required. Your material costs with Cataflex can be AS LOW AS 10 CENTS PER SQ. FT.

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Employees Get More Time Off If They Are Safe, Polite

CITY employees of Hollywood, Fla., get an extra half day's vacation every six months if they have perfect safety records and no black marks for being discourteous in citizen contacts, according to the *Civil Service Assembly*.

The plan went into effect when a reduction in the work week from 44 to 40 hours made it necessary to change the amount of vacation time, figured on the basis of hours worked. Instead of just shortening the regular vacation time by one day, officials decided that the bonus, half-day vacation would serve as an incentive to employees to take special care to avoid accidents and to keep them aware of their responsibility for good public relations.

Odor Counteraction

(Continued from page 109)

maintenance except for weekly filling of the containers.

One activated-sludge plant, rated at 12 mgd, employs two guns mounted over the aeration tanks and another over the grit-removal chamber. Another plant, treating sewage contributed by 20,000 people and waste from a pharmaceutical laboratory, uses two guns at the trickling filters. A third plant uses a vaporizing gun to counteract hydrogen sulphide odors that escape from a sewage effluent station. However, the operators make no effort to counteract the hydrogen sulphide odor within the station, since the gas is deadly and its warning odor is helpful to the operators.

For plants located in areas where the prevailing wind may be away from populated or residential areas, wind-control devices are supplied that automatically apply the counteracting agent when the wind veers toward the area and stops the application when the wind direction changes to an unpopulated area.

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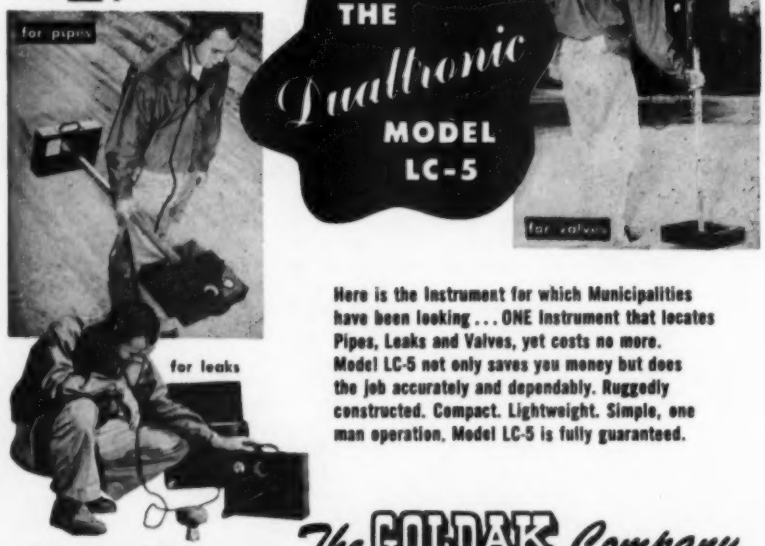

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WRITE FOR COMPLETE BROCHURE

"Operation Vallingby"

(Continued from page 119)

first one in Sweden—and "copying" ours.) Public dental help is available, but there are any number of dentists in successful private practice. The Swedish Chamber of Commerce estimates that, except for transportation, communications and power, private enterprise accounts for the bulk of the national economy.

The recreation and sports area extends down to the water, where an "open air bath" is planned. (This will be a beach if the water tests are satisfactory—or a pool if the water must be filtered.) A nice small inn at the water's edge will be retained as a restaurant, and along the waterfront will be docking facilities for small craft. To many Swedes, owning a boat is just as important as owning a car, unless the car is needed for transportation.

How the Project Was Financed

In the financing of this ambitious project, municipal ownership of the land and municipal ability to borrow directly from the banks were basic factors. Construction of the underground, of streets and sidewalks, installation of water mains, sewer pipes, and the utilities—including a central heating plant and public laundries — have been financed through loans. The cost and maintenance will be figured in land rentals and in rates charged for gas and electricity.

Another factor has been the availability of State loans and the control of credit and interest rates.

First and second mortgages up to 60% of the cost of construction are guaranteed by the State. After that a State loan may be had up to 90%. Interest schedules are: first mortgage, 3.05%; second mortgage, 4%; third mortgage (state loan), 5.07%. Breakdown on the last is 3% rent, 2.07% amortization to be accomplished in 25 years.*

The size of each loan (in relation to cost) may vary according to the kind of construction company seeking the loan. There are publicly owned construction companies, in which the municipality owns all the shares; cooperative building companies—in which the members hold the shares; and those which are privately owned. All three are at work building Vallingby.

In 1907 a law governing the rental of land introduced the leasehold system for property ownership, leases being written for 60 years. The law was revised in 1952 so that land leases now are "forever" — actually 99 years. A distinction is made between land rental and the real estate tax, which is very low and is determined largely by the extent to which the owner derives income from his property. A town's budget is financed through a proportionate income tax, and land belonging to the city is handled by the Commission of Real Estate Administration.

* The builder of a 1-family house may have 8,000 kroner ($1,544) of the third mortgage free of interest for 10 years.

The Radburn Influence

It was interesting to read in an article describing the trend of planning in Sweden:

> **In accordance with the famous Radburn plan (New Jersey, U. S. A.) . . . our own contemporary schemes aim to meet the demand that everyone should be able to reach the center of his community from his home via a footway not crossed by wheeled traffic.**

This principle has been applied to the Vallingby scheme so completely that one can walk—or bicycle—throughout the area without encountering automobile traffic. Parkways intersect the motor streets at separate grades and lead to shops, schools, and stations. Industry is so placed as to take advantage of the main highway, and the railroad.

Of particular importance to Vallingby will be the power and heat generating plant that will furnish Stockholm with additional electric power at peak hours and the whole Vallingby area with heat and hot water. All refuse will be collected and burned in this plant in order to reduce fuel costs.

A Comparison

Soon Vallingby will no longer be remembered as a farm estate but will be a metropolitan section of Greater Stockholm and a beautiful and comfortable place to live. Its inhabitants will be able to "take root" and grow in a "climate" of permanence and well being. As family needs increase, they will be able to find suitable dwelling space within the area. They will not have to pull up their roots and move away. They will know the satisfaction of continuing friendships formed in their childhood—and the sense of security that comes from being an active part of the community.

Upon returning from Europe, last November, I saw many of the new real estate developments near New York that have mushroomed almost overnight—and I found myself greatly depressed. Vistas, too often, of monotonous rows of similar houses —in little "bedroom towns" — with few, if any, open spaces and inadequate community facilities. One quarter of our national population are suburbanites. What kind of suburbs are they living in? And what will be the effect of this kind of suburban living on the national character?

It seems to me that we might be smarter than we are.

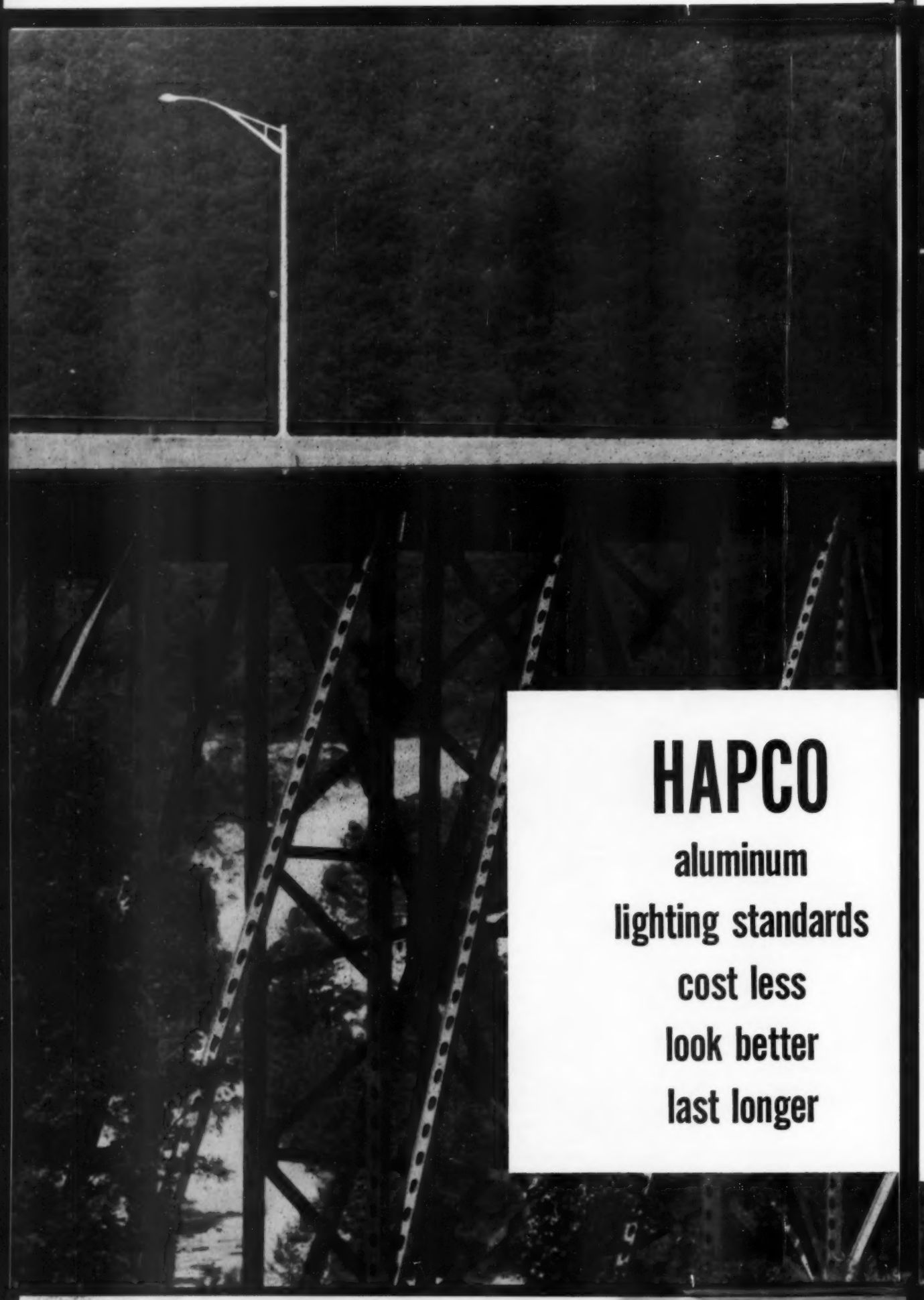
The author is indebted to Secretary Eric Braunerhielm, of the Swedish Foreign Office; to the Director of the Stockholm Planning Office, Sven Markelius; to his Chief Assistant, Per Holmgren; and to Engineer Arne T. Bergqvist of the Real Estate Board, for their assistance in assembling the material from which this article was prepared. Also to Clarence S. Stein for valuable comments.

Seven Tennessee Cities Get Federal Planning Aid

A FEDERAL planning grant of $25,767 will give seven Tennessee cities a chance to plan their future growth and to develop local programs to prevent the creation of slums. The grant, which will go to the Tennessee State Planning Commission, will finance half of the total cost of the planning studies to be undertaken in the seven cities. The State will provide the other half and will provide the technical staff to work with the municipalities involved. The grant is the second to be made from a $1,000,000 appropriation set aside by Congress for a nationwide urban planning assistance program authorized by the Housing Act of 1954.

The seven communities that will receive the planning aid are Athens (population 8,618), Dyersburg (population 10,885), Elizabethton (population 10,754), Kingsport (population 19,571), Lewisburg (population 5,164), Morristown (population 13,019), and Union City (population 7,665). The studies to be undertaken include population surveys, land-use studies, thoroughfare plans, parking and traffic studies, general land-use plans, preparation of subdivision regulations, and preparation and revision of zoning codes.

The federal planning aid program provides for grants to official state planning agencies to help them give assistance to communities of less than 25,000 persons. Information about the program can be obtained from the Housing and Home Finance Agency, Washington 25, D. C.



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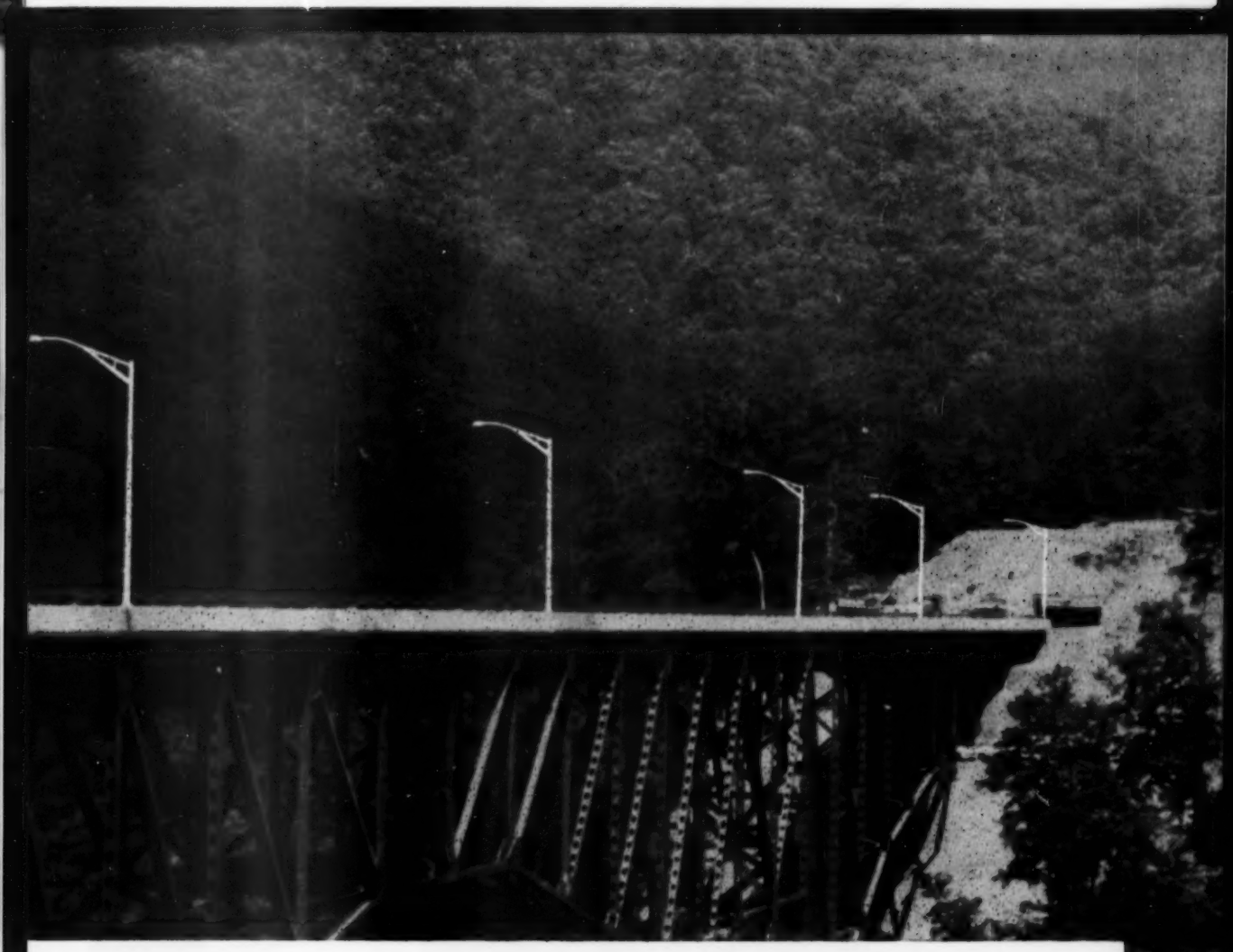

Hapco Lighting Standards cost less than other lighting standards when installed costs are carefully figured. In most cases, this saving is apparent as soon as the standards are erected. In a few areas a short period of service may be required before the costs drop below other types of standards. At this point the advantage continues to increase as long as the standards are in use.

The major reason for lower costs, as soon as the standard is put into service, is that Hapco Poles and Lighting Standards do not require that first painting job, nor any subsequent maintenance painting. Therefore, you can deduct the cost of the paint and the labor of applying it.

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For more details, see your nearest distributor or write direct to Hubbard Aluminum Products Company, 6301 Butler Street, Pittsburgh 1, Pennsylvania. Better yet, if you have not received our 24-page Hapco Catalog on Street Lighting Standards (Catalog No. HAL-754), write to the above address for your copy. This catalog contains valuable information to help you plan the most efficient, most beautiful highway and street lighting, as well as any other outdoor lighting.

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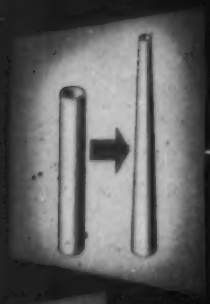

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FIRST to stress use of castings of heat-treatable aluminum alloy, and first to introduce permanent mold castings for transformer bases, shoe and pedestal bases . . . with smooth surfaces and strong grain structure.

FIRST to eliminate unnecessary scrolls, tie-rods and other ornamental frills.

FIRST to design and build its own tapering machine to handle all diameters of extruded aluminum tubing.

Seven firsts . . . . . All are P&K

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New Economies with Copper Drainage Tube?

(Continued from page 151)

words "Copper Drainage Tube" for "Type M Copper Water Tube" or for "Type L Copper Water Tube," as the case may be.

It should be pointed out that Copper Drainage Tube is recommended for all above-ground sanitary drainage but not for underground use. The appropriate copper tube (Type K) may be used underground under all conditions except in a cinder fill where it should be wrapped or protected from the effects of the cinders. Because of the more severe conditions to be met, no wall thickness less than that of Type L Copper Water Tube should be used for underground or under-concrete installation of a drainage line.

For identification, each length of Copper Drainage Tube is marked with the initials "DWV" (Drainage, Wastes, and Vents). These are the letters used in the *American Cast Brass Solder Type Drainage Fittings* (ASA Standard B16.23–1953). And, to assure the proper fittings to complement Copper Drainage Tube, reference to the American Standard for the fittings should be included in any modern plumbing code.

A complete installation with Copper Drainage Tube and Standard Cast Brass Drainage fittings will provide sanitary drainage that offers smooth interiors and low frictional resistance to flow. Interior walls of the copper tube remain smooth for the building's life. Soldered drainage fittings are installed by the same technique that most plumbers have developed for water lines. (Standard Cast Brass Drainage Fittings may be used with Types K, L, and M copper tube as well as with the new type DWV.)

Home Installation Savings

The design of residences varies widely, and the layout of the plumbing must necessarily conform to the layout of the building. Yet the basic principles for all small residences are similar, and the plumbing layout is essentially the same regardless of the metal used for the piping. However, the use of copper tube frequently permits important economies in sizes —important because of the saving in dollars and cents and space.

For example, in many cases, 3-inch copper tube will prove adequate for the soil pipe. A 3-inch soldered fitting for Copper Drainage Tube goes easily into the wall space provided by 2 by 4 studs. Long lengths permit further economies by eliminating many joints.

The actual selection of sizes in most instances is controlled by code requirements, but a 3-inch copper tube stack with a maximum of three branch intervals will accommodate up to 30 fixture units, including installation of two water closets. Where not fixed by code, a sanitary engineer or other qualified designer would probably specify a 3-inch stack, and would undoubtedly find other instances where smaller sizes would produce savings without sacrifice of assured satisfactory service.

The drainage tube may be used with equally good results in multi-story buildings. Typical installations of copper tube waste and vent piping for a tier of bathrooms in a tall building would probably utilize two stacks of copper, with soldered fittings. The waste lines, water-closet branches, and all the vents would be copper tube. The vent headers and waste lines should be long enough to take up what small expansion may occur in the stacks.

Expansion of the stacks under the most adverse temperature conditions likely to exist in such an installation is about ½ inch per 100 feet of stack length. By anchoring the stack midway between top and bottom, the maximum movement due to expansion is reduced by one-half. The expansion can be taken up by the copper by keeping the cross tubing from stack to stack at least 5 feet.

Copper Drainage Tube can be installed by a simple soldering operation, in which the solder is drawn into the joint by capillary action. Even while the joint is being made, the appearance of the solder around the entire circumference of the tube indicates that the joint has been completed and that a watertight and gastight bond has been obtained.

For an ordinary five- or six-room house, the amount of material handled when installing copper is only about one-fourth the weight of other materials used for drainage work. Because of its lighter weight and easier procedure for joining, copper tube lends itself to shop prefabrication for larger building developments with their multiplicity of units. It is recommended that only skilled plumbers should be entrusted with this work.

Additional Information Available

The copper industry is the oldest metal industry, and yet it is constantly alert to modern developments. Research is constantly carried on to reach this objective so that the red metal has been made incomparable in many fields of use.

The Copper and Brass Research Association will be glad to furnish such further information, technical or otherwise, as may be required with respect to Copper Drainage Tube or other products of the copper and brass mill products industry.

Recent Films on Planning and Other Municipal Operations

FILMS on local planning, redevelopment, and other municipal operations have been produced recently in areas as diverse as Atlanta, Boston, Philadelphia, University City, Mo., and Canada. One of the most impressive is Philadelphia's "Our Changing City," which shows the extensive slum clearance and other activities undertaken by that city's housing and redevelopment authorities. The film—a color and sound job—was produced by the city's Bureau of Public Information.

In Atlanta, the local Chamber of Commerce has just premiered a 27-minute color film pointing out that the Atlanta of tomorrow will come about only if planning proposals are implemented.

A neighborhood rehabilitation story told with cartoon drawings is presented in a 12-minute film produced by the Citizens Housing Association in Boston, Mass. The film, which is in color, is titled "You and Your Neighborhood."

The University City, Mo., film depicts the work of a number of the departments in the city government. It was produced at a total cost of only $1,650 by city employees and other interested persons.

Finally, the National Film Board of Canada, 630 Fifth Ave., New York, N. Y., has available an inspiring and beautifully produced film depicting the effect on a group of families of the demolition of their former substandard dwellings and the construction of a new low-rental housing project. The film, which runs for 17 minutes and is in black and white, is titled "Farewell Oak Street."

It's the NET that counts!

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But how much your City takes in!

For that all-important net revenue, your total parking meter income must be balanced against:

INSTALLATION COST: New installations or replacements, Karparks are installed easily and quickly

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KARPARK TWIN-O-MATIC

Times two cars with one installation. Adjusts to any desired change in regulations. Reduces maintenance and collection costs to unheard-of lows. Ruggedly built for long life.

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For single car parking. Can be used for an entire system of single car parking, or, when used with Twin-O-Matic, can be placed at street ends and special single locations.

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Incinerator Design and the Fly-Ash Problem

(Continued from page 127)

A few operating experiences are available. In consideration of such experiences, note should be made of the twofold effects of chimney discharges. The first is the discharge and deposit of particulate matter or dust which, in some cases, may arouse complaints. Effects of this kind may be considered as potential local nuisances. The second effect is the discharge of substances which may be considered as air pollutants. There is very little operating data with reference to this kind of effect. As points of departure, some operations are recorded.

An interesting operating experience occurred at the Georgetown (D. C.) incinerator. For several years prior to 1945, there were complaints about fly-ash deposits on residences. The chimney is 165 feet high; the top is at the same elevation as land occupied by fine homes some 4,000 feet to the north. Since 1945, changes have been made in the operation of the incinerator and complaints have ceased. The changes are briefly described as follows:

1. Erecting pilasters in the chamber following the combustion chamber which, by impingement, has reduced the emission of fly ash
2. Maintaining the pressure in the furnaces and combustion chambers at about that of the stoking room
3. Operating at temperatures between 1,600° F and 2,000° F
4. Controlling the operation by keeping dampers within close limits
5. Reducing the quantity of rubbish burned to 80% of rated capacity.

The routine has resulted in the following operating factors:

Item	As rated	As operated
Capacity in tons per 24 hours	85.0	68.0
Burning rate in pounds per hour per square foot of grate	52.0	41.5
Volumes in cubic foot per ton		
Furnace	11.5	14.4
Combustion chambers	23.5	29.4
Flue	21.6	27.0
Total volume	56.6	70.8

Those in charge have considerable confidence that this successful operation can be continued.

The Winnipeg incinerator has had another interesting operating experience. This incinerator was built in 1946, is centrally located, and has caused no complaints. There are four circular 100-ton units. The burning rate is 78 pounds per square foot of grate area at rated capacity. Much of the time, the incinerator has operated close to its rated capacity.

Two chambers follow the combustion chambers, each of which serves two furnace units. These chambers extend from the plant to a point beyond the chimney, and then enter the chimney through the side which faces away from the incinerator. The furnaces and chambers provide the following unit volumes:

Item	Volume per ton per 24 hours (in cubic feet)
Furnaces	9.0
Chambers	
Combustion	16.0
Expansion	18.8
Total	43.8

It should be noted that the Winnipeg incinerator handles mixed refuse comprising garbage, combustible rubbish, and some ash. The gaseous products of combustion are, therefore, less per ton of refuse than they are at the Georgetown plant, which handles rubbish. Probably, the displacement period is greater and the velocity through the chambers is smaller at Winnipeg than at the Georgetown plant.

Another operating experience took place at the New York City incinerators. While the Gansevoort plant has only been in operation less than two years, it has evoked no complaints. The total volume of the furnace and the chambers is 84 cubic feet per ton of rated capacity. This is a large plant handling close to 1,000 tons of mixed refuse per 24 hours in four burning units. The efficiency of these chambers is under study by the Battelle Institute. Studies of baffling arrangements in chambers like those at the Gansevoort plant promise that a 50% efficiency may be yet attained in the removal of particulate matter.

As a matter of interest, reference might also be made to the old incinerator at Milwaukee, which has been in operation for 43 years. The hot gases from the combustion chambers pass through flues into water-tube boilers, and from the boilers through tubular preheaters. A considerable amount of fly ash and particulate matter is removed in the boilers and preheaters. There are no records of complaints having been caused by the operation of this incinerator.

Full-Scale Tests Needed

We think that full-scale tests are desirable to determine the efficiency of fly-ash removal facilities and the effects of chimney emissions into the atmosphere. It would be helpful if several municipalities would cooperate in such an undertaking and would correlate and publish the results. For preliminary consideration the following cities or districts might be included:

1. Winnipeg, where there has been no complaint and where simple but ample subsidence or expansion chambers are in use
2. District of Columbia, where the tests could be made on the new No. 3 rubbish incinerator which has chambers providing a capacity of 204 cubic feet per ton of rated capacity
3. Milwaukee, where the new plant has a subsidence or expansion chamber equipped with wet baffles
4. New York City, where the subsidence or expansion chambers provide about 80 cubic feet per ton of rated capacity and where the baffling is guided by model tests at the Battelle Institute.

These four installations include two with round furnaces, one with grates of the Flynn & Emrich type, and one with moving grates.

Summary Statement

As to the relation of the design and performance of municipal incinerators to air pollution, there is, in our opinion, an insufficiency of operating information and data. At the present time, most operating incinerators rely on expansion chambers of various kinds for the removal of fly ash. The tendency in the last few years has been to increase their size.

(Continued on page 171)

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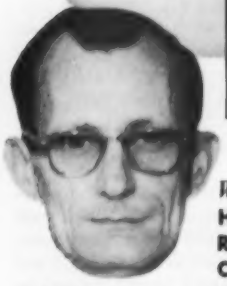
Most rugged long-life traffic signal lamp.

More intense center beam illumination promotes greater highway safety.



Writes
Harold W. Wieters
Radio Engineering - Electric Dept.
City of Charleston, South Carolina

Gentlemen:

A couple of months ago one of our center-hung lights was struck by a large van, hard enough to smash the entire section, including two lenses, two reflectors, and the case. We did not lose any of the twelve V-Beams in this light, and all but one are still in service in the new light, that one having been dropped while changing it over.

I might add, too, that of over 300 V-BEAM 4000 hour lamps placed in service last August, only two have been replaced due to burn-outs, to date.

Very truly yours,
H. W. Wieters

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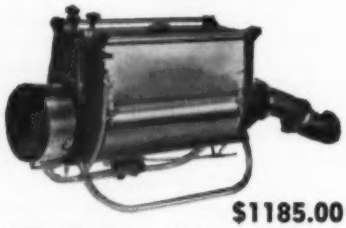

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Baseball bats don't pour out of a hose

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But they're lifted out by a Hayward bucket, as are also sticks and stones. Thirty basins a day is a good average day's work.

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Hundreds of cities are doing it with Haywards.

Write for Bulletin

THE HAYWARD COMPANY
50 Church Street, New York 7, N. Y.

(Continued from page 169)

Some design information on such chambers has been obtained by New York City from the operation of large models. There is practically no experience with fly-ash removal facilities of the mechanical kind, such as cyclones, or with electrostatic precipitators.

It seems clear that, in most localities, the discharges from incinerator chimneys are not large contributors to air pollution. It seems likely that chambers of some sort, which provide facilities for removal, such as traps, impingement walls, and water will meet existing needs to a sufficient and proper degree.

We think there are not sufficient data to justify large investments in fly-ash removal facilities. Designs like those for the District of Columbia, Winnipeg, and New York illustrate the best procedure at the present time. The general plan, however, should provide for the installation of more complete methods in the future if such are ever needed.

There is need for further improvement of furnace design, perhaps along the lines of the New York traveling grate furnaces, to provide better methods of charging and stoking. We think it desirable that municipalities assume the responsibility for the preparation of complete plans and specifications and for the risks of operation.

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Combined Park and Recreation Department Gets Results

(Continued from page 11)

board courts, the construction of a pavilion-type building and a barbecue house, and black-topping the parking area. Even the poles for the night lighting were fabricated at the city shop.

The events that led to the development of Community Park were described by Mr. Abernethy in a speech before the parks and recreation section of the League of California Cities last fall. Mr. Abernethy pointed out that 10 years ago, when the city had a population of 12,000 persons, there were no park or recreation facilities. This situation spurred a citizens' committee to encourage the local city council to appoint a recreation commission. After its appointment, the Commission recommended the employment of a professional recreation executive to guide the development of a program. Funds were provided for this purpose, and a limited program began.

A teen-age center, financed with funds from the merchants, private citizens, and money-raising events, was established to serve about 300 youths. Private and contributed funds were found to be inadequate, and so the Oxnard City Council was asked to place a recreation levy on the ballot. Support came from the newspapers, theaters, and other influential groups. A levy of 15 cents per $100 of assessed value was passed.

In a few years the program grew to include, besides the teen center and a playground system, a program for all ages. An Auld Lang Syne Club was formed for senior citizens, and classes in ceramics, upholstery, leathercrafts, and other hobby interests were developed. Baton twirling, puppetry, and other activities took their place in the program.

At about the same time a city manager was hired and a master plan developed for Oxnard's rapidly growing population. Specific areas of land were set aside for park development. The plan called for the location of park properties adjacent to proposed locations of elementary schools.

Financial support for Oxnard's park and recreation activities still comes from two sources—the special tax levy for recreation plus the appropriation for parks from the general fund. However, with the new Park and Recreation Department, the revenues from these two are combined into a single park and recreation budget that finances land and equipment acquisitions, and covers the maintenance and operation of all existing facilities.

Oxnard has gone far in 10 years. And the city is looking ahead to even going further in the near future. It has its heart set on a modern community auditorium, a fine swimming pool, more parks, and expanded playground programs.

Sound municipal management and skilled professional leadership are helping to provide opportunities for wholesome leisure time for the residents of Oxnard.

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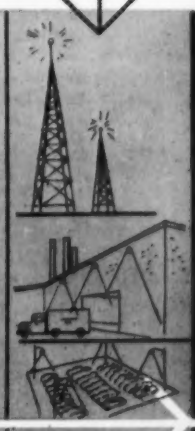
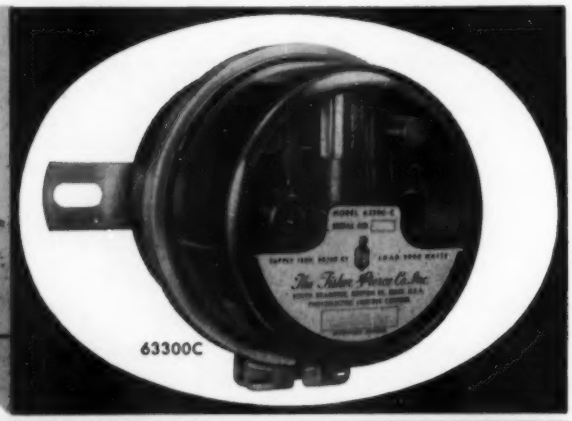
The extreme versatility and quality of Fisher-Pierce photoelectric lighting controls is evidenced by their widespread use over the past eight years, in controlling hundreds of street lighting systems . . . aircraft obstruction and beacon lights . . . outdoor signs and store window lights . . . parking, loading and storage area lights . . . poultry house and roadside telephone illumination, etc. All Fisher-Pierce controls employ a basic circuit whose dependability, ruggedness and trouble-free performance have been proven in use.

SERIES 63300C CONTROLS

Rugged, easily installed, accessible units for switching up to 3000 watts of lighting load. For operation at 105-130 or 210-250 V, 50-60 cycles. Standard models come with SPST, SPDT, or DPST power contactors. Special models are available with a switching capacity of 6000 watts. The electronic chassis is enclosed in a weatherproof watt-hour meter case assembly which plugs into a standard meter socket. The new 63300C design represents the results of eight years' extensive, specialized experience in the field.





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Small, compact, low cost units for switching 1000 watts of incandescent, mercury or sodium vapor lamps at 120 V, 50-60 cycles. Designed for use as an integral part of various manufacturers' luminaires, as well as for ballast, pole top, cross arm, standard and other mountings. Low initial cost and low maintenance make the use of one Series 64400 control per lamp economically practical for new street lighting installations and isolated locations.

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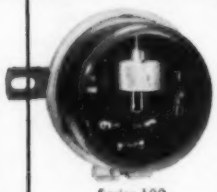
An inexpensive, compact, automatic control made especially for domestic use. Operates on 110 volts AC, switches up to 300 watts. Plug lamp to be controlled into NITELIGHTER plug, face "eye" toward window; living room, hall, garage lights, etc. go on at dusk, off at dawn automatically and without attention. You'll never come home to darkness. Protects the home when you're away. Get it at your dealer, or if he cannot supply you, send a check or money order for $15.95. A NITELIGHTER will be sent postpaid and insured.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Fisher-Pierce multiple relays incorporate a maintenance-free mercury plunger relay conservatively rated to switch 30 amps. at 110-115 volts AC. Series 100 relay is housed in a standard meter case and is available with or without line and coil protective equipment. The low cost Series 200 (not shown) is housed in a weatherproof cast aluminum case. Both series are designed for outdoor use as pilot wire control or for cascading street lighting circuits. Available with normally open or normally closed relays.

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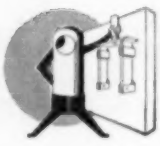

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The big, new refuse-collection combination was introduced to N. Y.-N. J. public works men at the equipment show. (Right) Mrs. Helen Fabris, of the Hackensack Department of Health, gets a few pointers on the operation of a leaf collector that cleans catch basins.

New Equipment Introduced at N.Y.-N.J. APWA Meeting

AT the spring meeting of the New York-New Jersey Metropolitan Chapter of the American Public Works Association, the 300 or more members who attended were given an opportunity to inspect two units making their debut in the East. One is a special refuse-collection combination especially fitted for service in apartment-house and other sections that generate above average amounts of refuse. The other is a leaf blower, equipped with a special attachment which permits it to be used for the cleaning of catch basins.

The refuse truck represents a pooling of equipment produced by four separate firms. The unit uses a Ford truck chassis, a Pak-Mor collection body with a special opening at the top, and Holmes-Owen lifting arms that pick up a Dempster-Dumpster container, raise it so that it empties into the top of the truck body, and return it to the ground.

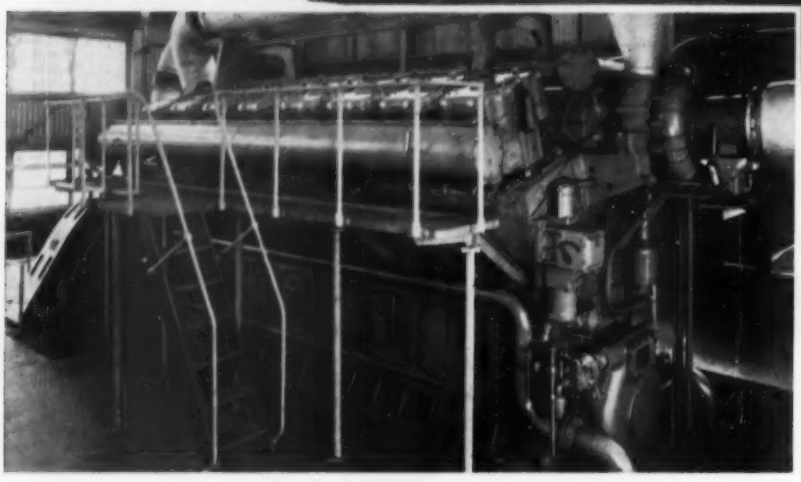
Catch-basin cleaning is a new duty assigned to a Good Roads leaf collector. The unit has an over-size blower to create suction. The blower is placed so that none of the debris collected has to pass through it. The operator cleans the catch basin by attaching an extension to the flexible hose normally used to pick up leaves and street debris. The unit has the usual side seat and guiding handles to permit easy maneuverability of the collection hose.

The meeting, held in Hackensack, N. J., was highlighted by an equipment parade of units owned and operated by the city. This parade is a semiannual affair in Hackensack (See the June issue of THE AMERICAN CITY, p. 115) and serves as a means of showing the city's residents the equipment that their taxes have purchased. The parade, and a discussion of equipment replacement policies were presented by Hackensack's City Manager Harold Reilly.

The remainder of the technical session was devoted to a discussion of street lighting which particularly emphasized the lighting of tree-lined streets. E. B. Karns, manager of street lighting, Westinghouse Electric Corporation, was the speaker.

Warren Coolidge (left), president of the American Public Works Association, and eastern vice-president Eddie Decher were both on hand for the chapter meeting. Mr. Coolidge is director of public works in Nashville, Tenn.; Mr. Decher is secretary of the Joint Sewer Commission, Newark, N. J.

Cooper-Bessemer Flexibility Helps M & A Green Forest Plant Win "Top-Rated" Honors



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Even with varying combinations of fuel, and changing power load demands, these Cooper-Bessemer engines offer reliable performance and long-lasting economy. In part, this is done through automatic controls, utilized to quickly, economically convert from gas-diesel to oil-diesel in the event of low gas pressure, and back again to gas-diesel when normal pressure is restored.

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Legal Notes and Decisions

Prepared by NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS
Charles S. Rhyne, General Counsel

Beaches—Ordinance Regulating Invalid

In suit by property owners against city to test validity of an ordinance establishing and regulating a paid bathing beach on the ocean by requiring the payment of fees by residents over age of 12 for use of beach and prohibiting nonresidents, held, discriminatory and invalid. *Brindley* v. *Borough of Lavellette*, 110 A (2d) 157 (N.J. Super., Law Div., Dec. 6, 1954).

Bonds—Payable from Franchise Tax on Utilities—Validity

In proceeding to test validity of proposed bonds that were to be payable solely from proceeds of franchise tax imposed on utilities and would not impose general obligation on taxing power of city, held, these were revenue certificates and not "bonds" within meaning of state constitution and would not require approval of city freeholders. *State* v. *City of Miami*, 76 So. (2d) 294 (Fla., Dec. 10, 1954).

Bribery—State Code Includes City Officials

State penal code section making it a felony to give or offer bribe to any "executive officer of the state" includes executive officer of city. *People* v. *Hallner*, 277 P (2d) 393 (Calif., Dec. 10, 1954).

City Council—Executive Sessions To Discuss Petition Valid

Where city council meeting to adopt resolution of necessity in connection with proposed paving project took report from clerk on number of petitions objecting to such project and then retired into executive session and considered the objections, such procedure was in substantial compliance with requirement that abutting property owners be afforded an opportunity to object to proposed improvement. *McMurray* v. *City of Pella*, 67 N.W. (2d) 620 (Iowa, Dec. 14, 1954).

City Employees—Prevailing Wage Law Does Not Apply

In action by city employee against city, held, prevailing wage law does not govern wages of classified city civil service employee working on construction of public improvement. *Craig* v. *City of Youngstown*, 123 N.E. (2d) 19 (Ohio, Nov. 17, 1954).

City University—Eligibility for Admittance—City Citizenship Means Residence

In action by foreign student against municipal university for declaration of rights under statute, held, that term "citizen of municipality" means any bona fide resident legally domiciled in municipality regardless of national or state citizenship. *Halaby* v. *Board of Directors of University of Cincinnati*, 123 N.E. (2d) 3 (Ohio, Dec. 8, 1954).

Civil Service—Political Activity By Policemen—Charges Preferred

Statute making it the duty of personnel director of county to make investigations and report to personnel board all matters touching the enforcement and effect of statute stating rules and regulations for control and rights of civil employees, gives the personnel director power to prefer charges against City of Birmingham policeman engaged in political activities. *Darnell* v. *Mullins*, 76 So. (2d) 770 (Ala., Oct. 28, 1954).

Fire Prevention—Sprinkler Systems—Order to Install Sustained

Where City of New York Fire Commissioner directed manufacturer of paper boxes to install sprinkler system, held, such order was within the authority vested in Commission by Charter and Administrative Code. *Application of Empire Distributory*, 135 N.Y.S. (2d) 836 (Sup. Ct. Sp. Term, Kings Cty., Dec. 17, 1954).

Gambling—Tax Statute Does Not Repeal Ordinance Prohibiting

Defendant was acquitted of violation of city ordinance forbidding operation of games of "bagatelle" or "pigeonhole." Lower court interpreted statute imposing a tax on such devices as repealing ordinance. On appeal, held, municipalities could prohibit or permit the taxed devices. *City of Chicago* v. *Wickey*, 123 N.E. (2d) 335 (Ill., Dec. 20, 1954).

Garbage Removal—Exclusive Contract After Competitive Bidding Valid

Village ordinance adopting a system of exclusive license for garbage removal after competitive bidding is fair, reasonable and valid exercise of police power of village. *Marangi Bros., Inc.* v. *The Board of Commissioners of the Village of Ridgewood*, 110 A (2d) 131 (N.J. Super Ct. App. Div., Dec. 6, 1954).

Gas—Village May Not Condemn Distribution System

In condemnation action by village to acquire gas distribution system, held, system not a "gas plant" within statute giving municipalities right to acquire gas plants. *Village of Walthill* v. *Iowa Electric Light and Power Company*, 125 F. Supp. 859 (U.S. Dist. Ct. Nebraska, Nov. 29, 1954).

Hospital Records—Refusal to Deliver Upon Advice of City Attorney—Not Contempt

Where superintendent of a county hospital acted in good faith on advice of New York City Corporation Counsel in failing to obey grand jury subpoena for production of hospital records concerning abortions, his disobedience was not criminal contempt of court. *In Re Abortions in the County of Kings*, 135 N.Y.S. (2d) 381 (Kings Cty. Ct., Nov. 17, 1954).

Investigations—Self-Incrimination—Refusal to Testify After Waiver of Immunity

In a criminal contempt action against New York City policeman, held, that where statute would have provided witness before state grand jury with immunity from prosecution on matters on which his testimony was sought, punishment for refusal to testify did not constitute deprivation of any constitutional rights. *Regal* v. *People*, 75 S. Ct. 585 (April 25, 1955).

Liquor—Closing Hour Ordinance Valid

Ordinance requiring establishments selling alcoholic beverages to be closed during certain hours is valid. *City of Baton Rouge* v. *Rebowe*, 75 S. (2d) 239 (La., July 2, 1954).

Loyalty—Discharge of Teacher for Invoking Fifth Amendment Upheld

City school teacher does not have constitutional right to position after invoking her constitutional privilege of refusing to answer under oath before State Un-American Activities Committee, question asking if she was a member of Communist Party. *Board of Education of City of Los Angeles* v. *Eisenberg*, 277 P (2d) 943 (Cal. App., Dec. 23, 1954).

Off-Street Parking—City Cannot Condemn Land For—Statute

City brought action against landowner for condemnation of land for public parking, and landowner challenged jurisdiction of court. Held, where statute authorized parking authority to acquire land and did not expressly authorize it to condemn land in name of city, city was without authority to condemn land for parking. *City of Middletown* v. *Caulkins Automobile Company*, 109 A (2d) 888 (Conn. Super. Ct. Middlesex Cty., June 15, 1954).

Railroad Viaduct—Allocation of Costs

In proceeding for apportionment between city and railroad of cost of maintaining and repairing of viaduct on city street over railroad tracks, held, 50% of cost is to be paid by each, and it is not error that railroad instituted proceedings despite statute providing that either municipalities or highway commissioner may institute such proceedings. *Northern Pacific Railway Company* v. *City of Duluth*, 67 N.W. (2d) 635 (Minn., Oct. 22, 1954).

Salaries—City Officials—Invalidly Raised

City ordinance raising salaries of Commissioners and Mayor declared invalid as not in accordance with statute requiring annual compensation of city officials be fixed by city legislative body not later than the first Monday in May of the year in which such officials are elected. *Gerding* v. *Wald*, 273 S.W. (2d) 362 (Ky., Dec. 3, 1954).

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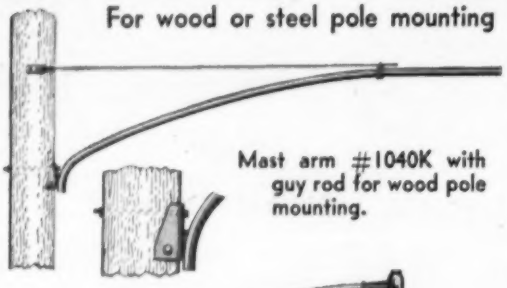

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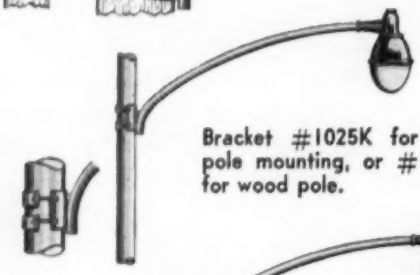
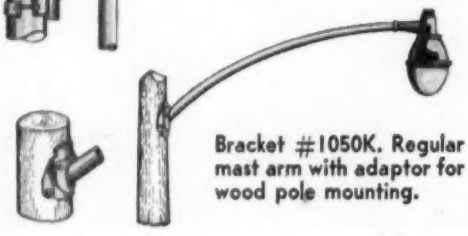


Bracket #1025K for steel pole mounting, or #1035K for wood pole.



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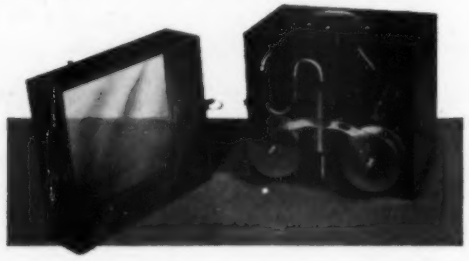

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Recent City Manager Appointments

The following portraits are of city managers whose appointments have been announced in preceding issues of *The American City*

Richard J. Bowen
Wells, Maine

Warren B. Browning
Drumright, Okla.

Hal. H. Hunt
Tonkawa, Okla.

Jay M. Edinger
Norwich, Conn.

James Bailey
Ellensburg, Wash.

The first manager of Mt. Morris, Mich., is JOHN BROWN, formerly a construction engineer.

WALDO BURGESS, former manager of Limestone, Maine, was appointed city manager of Old Orchard Beach, Maine, succeeding Norris W. Stilphen.

Van Buren, Maine, appointed a selectman of Grand Isle, Maine, ALBERT G. CYR, to succeed Adrian O. Jacques as city manager.

Succeeding John A. Gordon as manager of Barre, Vt., is ARTHUR H. CURTIS, manager of Mt. Desert, Maine.

The first manager of Grand Prairie, Texas, is DEAN I. DAULEY, manager of Owensboro, Ky.

J. H. FULLER, formerly the acting manager, was appointed city manager of Winter Haven, Fla., succeeding Cletus R. Allen.

Lapeer, Mich., appointed HOWARD R. GOHLKE, former manager of Northbrook, Ill., to succeed A. E. Fellers as city manager.

GENE GATLIN, manager of Gilmer, Texas, was appointed city manager of Orange, Texas, succeeding Ralph Wolf.

The first manager of Kennewick, Wash., is WILLIAM E. HANSEN, former manager of The Dalles, Ore.

Lovington, N. M., appointed JAMES W. HARRISON, manager of Edinburg, Texas, as its first city manager.

MORGAN HAYS, Manager of Utilities at Wagoner, Okla., was appointed first city manager of Broken Arrow, Okla.

Owensboro, Ky., appointed its director of finance, JOHN A. HETTLER, to succeed Dean I. Dauley as city manager.

EMERSON H. HIGGINS, formerly a municipal auditor, was appointed city manager of Calais, Maine, succeeding Roy H. Phillips.

The former manager of Hopewell, Va., R. THOMAS HOBBS, was appointed city manager of Graham, N. C., succeeding A. R. England.

The first manager of Randolph, Mass., is CHARLES R. IOVINO, the assistant manager of Quincy, Mass.

Bethel, Vt., appointed WILLIAM T. S. JACOBSON, former graduate student, to succeed Corwin S. Elwell as city manager.

DAVID C. KOESTER, manager of Baker, Ore., was appointed first city manager of Roseville, Calif.

The manager of Burkburnett, Texas, T. R. MCCASLING, was appointed city manager of Henryetta, Okla., succeeding Leon Carver.

ROBERT J. MCNUTT, former manager of Hazel Park, Mich., was appointed city manager of Harper Woods, Mich., succeeding Harry C. Seitz.

Warren, Maine, appointed STERLING C. MORRIS, a private businessman, to succeed Stanley W. Judkins as city manager.

Succeeding Lee O. Haworth as city manager of Pittsburg, Kans., is ALBERT W. NOLAND, manager of Marceline, Mo.

Clarksburg, W. Va., appointed GLENN R. PETERSON, JR., budget officer at Richmond, Va., to succeed William G. McFarlin as city manager.

HARRY S. SCOTT, the city controller, was appointed city manager of Compton, Calif., succeeding Kenneth B. Douglass.

FREDERICK T. STAPLES was appointed city manager of Mt. Desert, Maine, succeeding Arthur H. Curtis.

The first manager of Grinnell, Iowa, is M. B. STARR, the city engineer.

Panhandle, Texas, appointed FRANK VICE, city manager, succeeding J. L. Naylor.

DONALD J. WARING, manager of Dexter, Maine, was appointed city manager of Brewer, Maine, succeeding Ronald E. Stewart.

CLARENCE E. RIDLEY
Executive Director
International City Managers' Association

Two Nationally Known Planners Appointed Professors

ANNOUNCEMENTS of two important appointments in planning education were made recently. In Urbana-Champaign, Ill., it was revealed that Louis B. Wetmore, 43, nationally known consultant in city and regional planning will become professor and head of city planning and landscape architecture at the University of Illinois on September 1, 1955.

In Cambridge, Mass., it was announced that Charles William Eliot, II, landscape architect and regional planner, will become Professor of Landscape Architecture at the Harvard University Graduate School of Design. The professorship to which Mr. Eliot has been appointed bears the name of his uncle, Charles Eliot, who was chiefly responsible for the development of the Boston metropolitan park system.

At present Professor Wetmore is visiting professor of city and regional planning at Massachusetts Institute of Technology, and consultant to the Rhode Island Development Council, an agency for state planning, economic development, and community planning assistance. Mr. Eliot was graduated from Harvard College in 1920. From 1939 to 1943 he was director of the National Resources Planning Board and has recently carried on an extensive planning consulting practice on the west coast.

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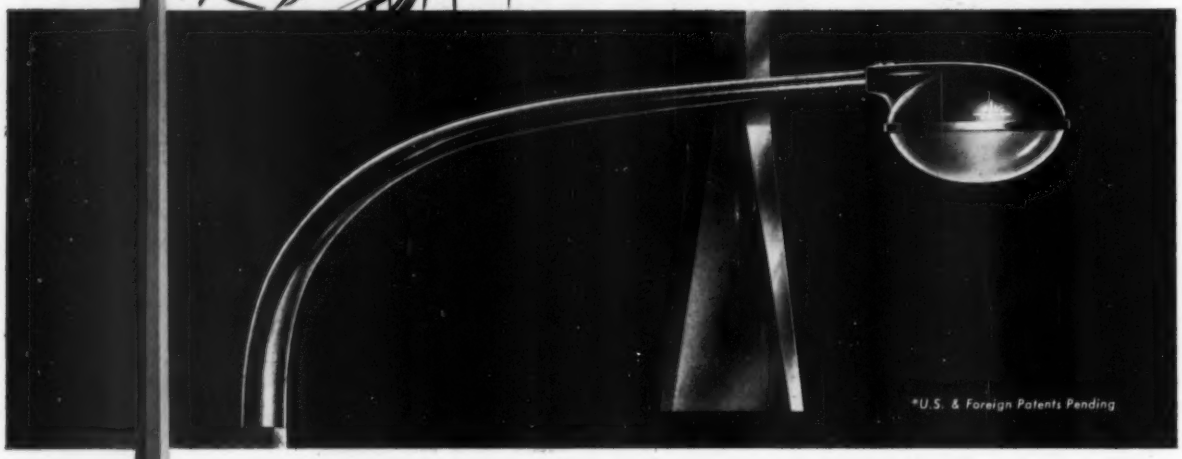

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Conventions—When and Where

Conventions listed this month for the first time are indicated by an asterisk (*)

July 17-20—Richmond, Va.
NATIONAL ASSOCIATION OF COUNTY OFFICIALS. Annual Convention (John Marshall Hotel). Exec. Sec., Keith L. Seegmiller, 1616 Eye St. NW., Washington, D. C.

July 17-20—Edgewater Park, Miss.
NATIONAL ASSOCIATION OF TAX ADMINISTRATORS. Annual Meeting (Edgewater Gulf Hotel). Exec. Sec., Charles F. Conlon, 1313 E. 60th St., Chicago 37, Ill.

July 20-23—Chattanooga, Tenn.
NATIONAL SECRETARIES ASSOCIATION. Annual Meeting (Read House). Exec. Sec., Helen J. Boyle, 25 E. 12th St., Kansas City, Mo.

July 24-27—Erie, Pa.
PENNSYLVANIA CHIEFS OF POLICE ASSOCIATION. Annual Convention (Lawrence Hotel). Exec. Dir., 320 State Theatre Bldg., Harrisburg, Pa.

July 24-27—Seattle, Wash.
NATIONAL MUNICIPAL LEAGUE. National Conference on Government. Exec. Dir., Alfred Willoughby, Carl H. Pforzheimer Bldg., 47 E. 68th St., New York 21, N. Y.

Aug. 1-5—Santa Barbara, Calif.
NATIONAL SHADE TREE CONFERENCE. Annual Meeting (Mar Monte Hotel). Sec.-Treas., L. C. Chadwick, Department of Horticulture, Ohio State University, Columbus, Ohio.

Aug. 22-24—State College, Pa.
PENNSYLVANIA SEWAGE AND INDUSTRIAL WASTES ASSOCIATION. Annual Conference (The Pennsylvania State University). For information, address Sec.-Treas., Bernard S. Bush, Kirby Health Center, Wilkes-Barre, Pa.

Aug. 28-Sept. 1— Edmonton, Alberta
CANADIAN FEDERATION OF MAYORS AND MUNICIPALITIES. Annual Meeting (Macdonald Hotel). Exec. Dir., George S. Mooney, Office M-16, Mount Royal Hotel, Montreal Quebec, Canada.

Sept 7-9—Saranac, N. Y.
AMERICAN WATER WORKS ASSOCIATION—New York Section. Annual Meeting (Saranac Inn). Sec., Kimball Blanchard, Rensselaer Valve Co., 56 Grand St., White Plains, N. Y.

Sept. 8-10—Mackinac Island, Mich.
MICHIGAN MUNICIPAL LEAGUE. Annual Convention (Grand Hotel). Dir., John H. Huss, 205 S. State St., Ann Arbor, Mich.

Sept. 11-13—Fort Monroe, Va.
LEAGUE OF VIRGINIA MUNICIPALITIES. Annual Convention (Chamberlin Hotel). Exec. Sec., Harold I. Baumes, 905 Travelers Bldg., Richmond 19, Va.

Sept. 11-13—Minot, N. D.
LEAGUE OF NORTH DAKOTA MUNICIPALITIES. Annual Convention (Clarence Parker Hotel). Exec. Sec., Roberta C. Burr, 504½ Main Ave., Bismarck, N. D.

Sept. 11-13—Hutchinson, Kans.
LEAGUE OF KANSAS MUNICIPALITIES. Annual Convention (Baker Hotel). Exec. Sec., John G. Stutz, 512 Capitol Federal Bldg., Topeka, Kans.

Sept. 12-14—Lexington, Ky.
AMERICAN WATER WORKS ASSOCIATION—Kentucky–Tennessee Section. Annual Meeting (Phoenix Hotel). Sec., J. Wiley Finney, Jr., 553 S. Limestone St., Lexington, Ky.

Sept. 12-14—Shawnee-on-Delaware, Pa.
GOVERNMENTAL RESEARCH ASSOCIATION. Annual Convention (Shawnee Inn). Sec., Elsie V. Haas, 684 Park Ave., New York 21, N. Y.

Sept. 14-16—Flint, Mich.
AMERICAN WATER WORKS ASSOCIATION—Michigan Section. Annual Meeting (Durant Hotel). Sec., T. L. Vander Velde, Chief, Section of Water Supply, State Department of Health, Lansing 4, Mich.

Sept. 14-17—Salt Lake City, Utah
UTAH MUNICIPAL LEAGUE. Annual Convention (Newhouse Hotel). Acting Exec. Dir., A. M. Ferro, Newhouse Hotel, Salt Lake City, Utah.

Sept. 14-17—Saranac Inn, N. Y.
COUNTY OFFICERS ASSOCIATION OF THE STATE OF NEW YORK. Annual Meeting (Saranac Inn). Exec. Sec., D. C. Scribner, County Bldg., Johnstown, N. Y.

Sept. 18-20—Grand Island, Nebr.
LEAGUE OF NEBRASKA MUNICIPALITIES. Annual Convention (Hotel Yancy). Exec. Sec.-Treas., C. E. Beals, 303 Continental Bldg., Lincoln, Nebr.

Sept. 18-21—San Francisco, Calif.
LEAGUE OF CALIFORNIA CITIES. Annual Convention (Palace, St. Francis, Sir Francis Drake Hotels). Associate Director, Howard Gardner, Hotel Claremont, Berkeley 5, Calif.

Sept. 18-22—Essex County, N. Y.
NEW ENGLAND WATER WORKS ASSOCIATION. Annual Convention (Lake Placid Club). Sec., Joseph C. Knox, NEWWA, 73 Tremont St., Boston 8, Mass.

Sept. 18-23—Louisville, Ky.
AMERICAN INSTITUTE OF PARK EXECUTIVES. Annual Conference (Kentucky Hotel). Exec. Sec., Alfred B. LaGasse, 143 S. Lincoln Ave., Aurora, Ill.

***Sept. 19—Laramie, Wyo.**
ROCKY MOUNTAIN SEWAGE WORKS ASSOCIATION. Annual Meeting (Connor Hotel). Sec., Robert Peterson, City and County Bldg., Denver, Colo.

Sept. 19-22—Omaha, Nebr.
INTERNATIONAL ASSOCIATION OF FIRE CHIEFS. Annual Conference (Fontenelle Hotel). Exec. Sec., Jay W. Stevens, 1014 Merchants Exchange Bldg., San Francisco 4, Calif.

Sept. 20-21—Laramie, Wyo.
AMERICAN WATER WORKS ASSOCIATION—Rocky Mountain Section. Annual Meeting. (Connor Hotel). Sec., J. W. Davis, Johns-Manville Sales, Inc., Denver, Colo.

Sept. 21-23—Atlanta, Ga.
GEORGIA WATER AND SEWAGE WORKS SCHOOL. Twenty-Fourth Annual Session (Hightower Textile Bldg., Georgia Institute of Technology). For information address A. T. Storey, Georgia Water and Sewage Association, 1210 Hemphille Ave. NW., Atlanta, Ga.

Sept. 21-23—Columbus, Ohio
AMERICAN WATER WORKS ASSOCIATION—Ohio Section. Annual Meeting (Neil House). Sec., M. E. Druley, Dayton Power & Light Co., Wilmington, Ohio.

Sept. 21-23—Milwaukee, Wis.
AMERICAN WATER WORKS ASSOCIATION—Wisconsin Section. Annual Meeting. (Hotel Schroeder). Sec., Leon A. Smith, City Hall, Madison, Wis.

Sept. 21-23—Mobridge, S. D.
SOUTH DAKOTA WATER AND SEWAGE WORKS. Annual Meeting (Brown Palace Hotel). Exec. Sec., Charles E. Carl, Dir., Div. of Sanitary Engineering, State Department of Health, Pierre, S. D.

***Sept. 21-23—Toledo, Ohio**
OHIO MUNICIPAL LEAGUE. Annual Meeting (Commodore Perry Hotel). Exec. Dir., Allen E. Pritchard, Jr., 85 S. Grant Ave., Columbus, Ohio.

Sept. 25—Stowe, Vt.
NATIONAL CONFERENCE OF STATE PARKS. Annual Meeting. Exec. Sec., Harlean James, 901 Union Trust Bldg., Washington 5, D. C.

***Sept. 25-27—Joplin, Mo.**
AMERICAN WATER WORKS ASSOCIATION—Missouri Section jointly with the MISSOURI WATER AND SEWAGE CONFERENCE. Annual Meeting (Hotel Conner). Sec., W. Kramer, State Office Bldg., Jefferson City, Mo.

Sept. 25-29—Montreal, Que.
AMERICAN SOCIETY OF PLANNING OFFICIALS. Annual Meeting (Sheraton Mount Royal Hotel). Exec. Dir., Dennis O'Harrow, 1313 E. 60th St., Chicago 37, Ill.

Sept. 25-Oct. 1—Rome, Italy
INTERNATIONAL UNION OF LOCAL AUTHORITIES. Annual Convention (Esposizione Universale di Roma). For information address Charles S. Ascher, Public Administration Clearing House, 45 E. 65 St., New York, N. Y.

Sept. 26-29—Rochester, N. Y.
INTERNATIONAL MUNICIPAL SIGNAL ASSOCIATION. Annual Meeting (Hotel Seneca). Sec., Irvin Shulsinger, 130 W. 42nd St., New York 36, N. Y.

Sept. 26-29—Boston, Mass.
AMERICAN TRANSIT ASSOCIATION. Annual Convention (Statler Hotel). Gen Sec., Arthur W. Baker, 292 Madison Ave., New York 17, N. Y.

Sept. 27-Oct. 1—Denver, Colo.
NATIONAL RECREATION CONGRESS (Shirley-Savoy Hotel). Sec., T. E. Rivers, 8 West Eighth St., New York 11, N. Y.

Sept. 29-Oct. 1—Boston, Mass.
UNITED STATES CIVIL DEFENSE COUNCIL. Annual Conference (Statler Hotel). Sec.-Exhibit Mgr., George F. Arnold, 181 S. Washington Blvd., Columbus, Ohio.

Oct. 2-5—Milwaukee, Wis.
AMERICAN PUBLIC WORKS ASSOCIATION. Public Works Congress and Equipment Show (Hotel Schroeder, Municipal Auditorium). Exec. Sec., D. F. Herrick, 1313 E. 60th St., Chicago 37, Ill.

Oct. 2-6—Philadelphia, Pa.
INTERNATIONAL ASSOCIATION OF CHIEFS OF POLICE. Annual Conference (Benjamin Franklin Hotel). Exec. Sec., Leroy E. Wike, The Mills Bldg., Washington 6, D. C.

***Oct. 5—New York, N. Y.**
REGIONAL PLAN ASSOCIATION. Annual Meeting (Hotel Roosevelt). Vice-Pres., C. McKim Norton, 205 E. 42nd St., New York 17, N. Y.

***Oct. 5-6—Des Moines, Iowa**
LEAGUE OF IOWA MUNICIPALITIES. Annual Convention (Hotel Fort Des Moines). Exec. Sec.-Treas., Max A. Conrad, 409 Tama Bldg., Burlington, Iowa.

***Oct. 5-7—Minneapolis, Minn.**
AMERICAN WATER WORKS ASSOCIATION—North Central Section. Annual Meeting (Radisson Hotel). Sec., Leonard N. Thompson, Gen. Mgr., Water Department, St. Paul 2, Minn.

(Continued on page 195)

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Municipal & Civic Publications

1955 Edition of Top Municipal Source Book

THE MUNICIPAL YEAR BOOK, 1955—*Clarence E. Ridley and Orin F. Nolting, editors. International City Managers' Association, 1313 East 60 St., Chicago 37, Ill. May 1955. 588 pp.* $10.

The 22nd annual edition of the most comprehensive single source of information on municipal trends has just been published. This year's issue of The Municipal Year Book contains 588 pages of tables, graphs, and other data on virtually every important aspect of municipal government.

An important new section shows municipal nonproperty taxes adopted during 1953 and 1954 by cities of over 5,000 residents. Data and analyses are presented on rates and yields for sales, income, public utility, auto license, alcoholic beverage, and other nonproperty taxes.

Another highlight of the 1955 edition is a section on cultural activities available in cities, with an analysis of the role of the city government in providing museums, art galleries, music, and other cultural activities for the public. The management, financing, and operations of publicly-owned museums are analyzed in some detail.

As in past years, significant developments during 1954 in each major municipal activity are reviewed by an outstanding authority in the field. The article on "City Legal Problems in 1954," for example, analyzes numerous court cases dealing with racial segregation in public facilities, municipal loyalty programs, fluoridation of municipal water supplies, censorship of motion pictures, and esthetic factors in urban redevelopment. Summary articles precede each major table in the book with analyses of the data reported by hundreds of cities.

More than Malicious Mischief

A STUDY OF VANDALISM—*Conducted by a Special Committee of the Denver Area Welfare Council, Inc. April 1954. 62 mimeo. pp.*

The senseless and vicious destruction of public and private property, as a particularly acute aspect of juvenile delinquency is surveyed in the Denver area, in addition to which replies to questionnaires from nine other cities are analyzed in this report. The conclusions reached are presented as a possible guide to an action program to be implemented by city authorities and various social and welfare agencies.

How to Set Up a Local MPR Program

A MUNICIPAL PUBLIC RELATIONS PROGRAM THAT WORKS!—*By Pan Dodd Wheeler. Government Public Relations Association, Box 8260, University Station, Knoxville, Tenn. June 1955. 22 pp. plus addenda.* $1.

This fine new booklet will be especially welcomed by officials who want to know more about the municipal public relations function and how to set up a public relations program in their city or town.

EDITORIAL NOTE: See item on page 18 of this issue.

Water and Wastes Examination

STANDARD METHODS FOR THE EXAMINATION OF WATER, SEWAGE AND INDUSTRIAL WASTES—*Tenth Edition. American Public Health Association, 1790 Broadway, New York 19, N. Y. 1955. 522 pp.* $7.50.

This edition not only commemorates the 50th anniversary of the publication of the first edition of this book, but it also marks the first time that the Federation of Sewage and Industrial Wastes Associations has joined with the American Public Health and American Water Works Associations in producing the volume.

The text discusses the physical and chemical examination of water, sewage, and industrial wastes; physical and chemical examination of sludges and bottom sediment; bacteriologic examinations of water; and biologic examination of water, sewage and sludge. The changes and additions in this edition are the largest noted in any revision and almost double the text. The book includes a valuable 20-page index.

Modern Purchasing Method

PURCHASING PROCEDURE FOR LOCAL GOVERNMENTS—*By Joseph M. Cunningham. Govforms Company, 111 Broadway, New York 6, N. Y. 13 pp. plus forms.* $1.

This publication presents an example of a brief but complete central purchasing procedure, stating the responsibilities and duties of the purchasing department, establishing the functions of the accounting and auditing sections with respect to purchases, and illustrating and explaining the forms used in the process. The methods may be adjusted by a municipality to accord with local conditions.

Research on Rapid Economic and Population Growth

ACCELERATED URBAN GROWTH IN A METROPOLITAN FRINGE AREA—*A Study of Urbanization, Suburbanization and the Impact of the U. S. Steel Plant in Lower Bucks County, Pa. By The Institute for Urban Studies, University of Pennsylvania with the cooperation of the Bureau of Urban Research, Princeton University. The Institute for Urban Studies, University of Pennsylvania, Philadelphia, Pa., September 1954. Volume I, Summary Report. 63 pp. Volume II, Project Report. 262 pp. plus tables.*

This two-year study was undertaken with the aid of funds from the Housing and Home Finance Agency to determine the impact of the Fairless Works of the U. S. Steel Company on Lower Bucks County and to develop guides for urbanization and industrialization in metropolitan fringe areas like Lower Bucks County. The results are reported in two volumes. Volume I is a summary of the final project report and is intended for the general reader interested in urban problems and urban growth. Volume II, the complete staff report, is intended for the specialist interested in boom areas and rapid growth and for officials of other areas gathering parallel information to aid them in understanding their own situations.

Broad Review of Planning Law

LAND PLANNING IN A DEMOCRACY.—*Law and Contemporary Problems, Vol. 20, No. 2. Duke University School of Law, Duke Station, Durham, N. C. Spring 1955. pp. 197-350.* $2.

This is an important addition to basic planning literature. The vast amount of building activity during the past 10 years throughout the nation has given persons associated with the planning profession an ample opportunity to observe the effectiveness of our present planning theory and law in helping to mold an efficient physical pattern for our democratic society. In this excellent review of existing legal planning tools and how they are dealing with major problems of America's urban society, nine highly qualified planners and lawyers present their views of the present status of planning law and its future trends in American democracy.

The individual articles that are included are: "Constitutional Law and Community Planning," by Corwin W. Johnson; "Zoning for Esthetic Objectives: A Reappraisal," by J. J. Dukeminier, Jr.; "The Relationship of Zoning and Traffic Generators," by Allen Fonoroff; "Large Scale Developments and the One-House Zoning Controls," by William C. Vladeck; "Zoning for Amenities," by Seymour I. Toll; "Discretionary Powers of the Board of Zoning Appeals," by John W. Reps; "Regulating the Timing of Urban Development," by Henry Fagin; "Elimination of Incompatible Uses and Structures," by C. McKim Norton; and "Planning Law and Democratic Living," by Norman Williams, Jr.

Robert Kramer, editor of Law and Contemporary Problems, has provided a foreword.

Erosion Control

SHORE PROTECTION PLANNING AND DESIGN—*Technical Report No. 4. Corps of Engineers, Department of the Army. Sales through Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Mimeographed, stapled but unbound. 241 pp.* $2.25.

The Army Engineers assemble into one informal volume the strategy and tactics to be used when battling the erosive force of rivers and the ocean. It is a practical and useful reference for any city engineer facing this sort of problem.

Public Works Cost Accounting

MUNICIPAL PUBLIC WORKS COST ACCOUNTING—*American Public Works Association, 1313 East 60th St., Chicago 37, Ill. 1955. 97 pp.* $3 ($2 *to members of APWA*).

Sample record and report forms, and simple procedures to be followed to give public works officials necessary cost information at any time are the features of this new publication. How to process and summarize field reports; how to report and account for equipment, operation and maintenance costs; and how to distribute overhead costs—are among the questions answered in the manual.

ASPO's 1954 Convention

PLANNING 1954—*American Society of Planning Officials*, 1313 *E. 60th St., Chicago 37, Ill.* 1955. 212 *pp.* $4.

Current thinking on more than 15 different topics of importance to community planning is presented in this book of proceedings of the 1954 Annual National Planning Conference of the American Society of Planning Officials. The Conference was held in Philadelphia, Pa., from Sept. 26-30, 1954.

Among the topics discussed at the clinic, workshop sessions, and forums were the following: urban renewal programs of the federal government, metropolitan problems, planning problems of small communities, the preservation of historical areas, fiscal planning and capital budgeting, the role of a citizen planning agency, emerging issues in zoning, performance standards for zoning, and other subjects.

In the fiscal planning and capital budget session, Raphael Pico, chairman of the Puerto Rico Planning Board, asserted that financial planning must be comprehensive and include estimates of future operating expenditures as well as those for capital expenditures.

In the clinic on planning problems in small communities, Richard Kraft, chief of the Local Planning Section of the Virginia Division of Planning and Economic Development, developed the idea that the master plan concept—the neat package in which all problems are solved—partakes of expertness and is, thereby, looked upon with suspicion by small-town businessmen who are often uneasy in the face of expertness. A master plan that is slowly evolved over a period of years with maximum citizen participation is Mr. Kraft's answer to this problem.

Proposes Metropolitan Government for Seattle Area

METROPOLITAN SEATTLE—THE SHAPE WE'RE IN—*Municipal League of Seattle and King County, Marion Bldg., Seattle 4, Washington. Undated.* 15 *pp.*

The Seattle area is suffering from "suburbanitis," and the Metropolitan Problems Committee of the Municipal League of Seattle and King County thinks that a more unified government for the growing urbanized area is needed. This report presents a clear and simplified analysis of the metropolitan problems that are emerging in the Seattle area. Seven possible forms which the "more unified government" could take are presented.

Conserving Princeton's Business Center

A STUDY OF THE CENTRAL BUSINESS DISTRICT—*Prepared by Community Planning Associates, Inc., Princeton, N. J., for the Princeton Borough Planning Board.* 1955. 53 *mimeo. pp.*

The study of Princeton's central business district leads to recommendations for new construction in the central area and for discouragement of decentralization of business. The organization of a "Central Business District Conservation Program" and the undertaking of steps for redevelopment of some areas, as well as off-street parking facilities and discouragement of through traffic, are among the recommendations made by the area-study group.

Successful Citizen Action

THE PEOPLE ACT—*By Elmore M. McKee. Harper & Brothers, 49 East 33rd St., New York 16, N. Y.* 1955. 269 *pp.* $3.50.

The inspiring story of citizen action in 11 communities across the country is told in this new book based on a series of radio broadcasts produced in 1950 and 1951. Each chapter tells the story of a successful attempt to solve an urgent need, a deep seated problem, or a basic social cleavage in a local community.

In Bat Cave, N. C., the residents needed a hospital; in Arlington, Va., the fight was for better schools; and in Seattle, Wash., the members of a racially mixed and separated community broke down the barriers between groups with shared activities. In these and eight other areas, spontaneous citizen action produced exciting results.

City administrators wanting to know more about the kinds of problems that stir local residents to action will find this book a valuable one.

Rubber Materials

RUBBER PRODUCTS—*American Society for Testing Materials, 1916 Race St., Philadelphia, Pa. December* 1954. 684 *pp.* $5.50.

Rubber technologists, sales engineers, and others concerned with production and use of rubber products will find this book of standards of service. It is sponsored by the ASTM Committee D-11 on Rubber and Rubber-like Materials which has conducted much research and development work and has developed voluminous data, all of which has tied in directly with its important work in making available alternative methods of testing.

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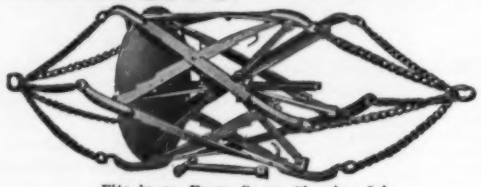

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A Program for Housing and Neighborhood Improvement

PHILADELPHIA'S PLAN OF ACTION FOR HOUSING AND NEIGHBORHOOD IMPROVEMENT—*By Emil A. Tiboni. Philadelphia Department of Public Health and National Association of Housing and Redevelopment Officials.* 1955. 20 *pp.*

The three parts of this improvement program deal with criteria to be used in selecting areas for early conservation, for rehabilitation, and for law enforcement; necessary community and official organization to put the program into effect; and selection of tools to be used and development of guideposts for the approach. A table at the end of the brochure lists 33 steps to be taken in dealing with pilot areas, the agency involved, and helpful comment.

Renewal Programs in Several Cities

APPROACHES TO URBAN RENEWAL IN SEVERAL CITIES—*Urban Renewal Bulletin No. 1 of the Housing and Home Finance Agency, Urban Renewal Administration, Washington, D. C.* 1954. 31 *pp. Available from Superintendent of Documents, Washington 25, D. C.*

Significant aspects of combined programs of slum clearance, rehabilitation, and conservation in 10 cities are briefly reported and illustrated. The cities—Baltimore, Chicago, Philadelphia, Pittsburgh, Milwaukee, Norfolk, Providence, Portland (Maine), Somerville (Mass.), and Binghamton (N.Y.)—have chosen to call attention to some of the types of renewal activities now under way.

1955 Housing Programs, Operations, and Amendments

CURRENT PROGRAMS AND OPERATIONS OF THE HOUSING AND HOME FINANCE AGENCY—*Housing and Home Finance Agency, Office of the Administrator, Washington 25, D. C. April 26,* 1955. 17 *pp.*

This factual summary for public interest organizations covers housing amendments of 1955, housing studies, programs for old-age housing and for low-income housing, slum clearance and urban renewal projects, FHA allocations for public housing contracts, the voluntary home mortgage credit program, and HHFA publications. A Brief Summary of "Housing Amendments of 1955" outlines the provisions of the amendments.

To Develop and Operate A Municipal Golf Course

THE MUNICIPAL GOLF COURSE—ORGANIZING AND OPERATING GUIDE. *Edited by Verne Wickham. National Golf Foundation, Inc., 407 Dearborn St., Chicago 5, Ill.* 1955. 120 *pp.* $3.

This practice book for municipal officials, city planners, and community groups contains basic information covering the municipal golf operation from the planning stage to its successful management. It presents facts, figures, and photos of actual case histories of golf operations in almost every section of the United States. Chapter headings include: Municipal Golf —How It Started; Why a Golf Course; Where Is the Money Coming From; Golfers Are Taxpayers, Too; Pro Shop and Food Concessions; Personnel and Public Relations; Public Links Golf Clubs.

New York's Needs

NEW YORK CITY 1955-1965—*A Report to the Community-Welfare and Health Council of New York City, 44 East 23rd St., New York, N. Y.* 1955 37 *pp.*

Telling of the changing needs of a changing population, this handsome booklet represents a cooperative effort of the Welfare and Health Council and of individual organizations. The Citizens' Housing and Planning Council prepared the section on housing, and the Public Education Association the data on schools. The cooperation of the City Planning Commission is apparent throughout. The report points up the gaps in facilities and services — housing, schools, health, recreation, etc.—and urges working together to solve the city's problems.

Citizen Information

CIVIC CINEMA. *A Fact and Figure Picture of South Bend—Mishawaka—St. Joseph County Government.—Prepared by South Bend Civic Planning Assn., Inc. (Virginia Guthrie, Executive Secretary)* 117 *East Madison St., South Bend, Ind.* 1955. 28 *pp.*

The information in this booklet has been compiled annually since 1949 by the Civic Planning Association, which represents St. Joseph County taxpayers. Through analyses of budget items by committees of Civic Planning and through studies of proposed civic improvements, officers are able to make suggestions for reducing expenses without impairing the functions of municipal departments. The data collected for each of the three government units covered (City of South Bend, City of Mishawaka, and St. Joseph County) cover population, education, health, parks and playgrounds, public works, elections, municipal salaries, public meetings, general expenses, computation of taxes, and other general information. The duties of municipal officials and departments are also outlined.

Paint and Varnish Products

PAINT, VARNISH, LACQUER, AND RELATED PRODUCTS—*American Society for Testing Materials,* 1916 *Race St., Philadelphia, Pa. January* 1955. 868 *pp.* $6.

The ninth edition of this compilation provides the latest review for more than 200 specifications, tests, and definitions, issued by the ASTM. The contents include listings on the broad headings of pigments, drying oil, paint dryers and thinners, shellac, varnish, and varnish materials, naval stores, cellulose and its derivatives, lacquer and its materials, traffic paint, bituminous emulsions, printing inks, paint tests, putty, paint weathering tests. The book is sponsored by the Committee D-1 on Paint, Varnish, Lacquer, and Related Products.

Advertising Council Renames Magazines

PUBLIC SERVICE ADVERTISING—*The Advertising Council, 25 West 45 St., New York 36, N. Y. (Formerly called* Advertising Council News).

The purpose of *Public Service Advertising* is to report and promote various uses of advertising as a force in helping solve national problems. The newly designed and titled issue introduces a series of profiles, the first subject being Robert Clarke, television art director of Geyer Advertising, Inc.

A French Study of Water and Sewage Treatment

WATER TREATMENT HANDBOOK—*Etablissements Emile Degremont. Boite Postal 46, Suresnes, France. English translation distributed by H. K. Elliott, Scientific and Technical Bookseller, 20 Harrington Court, London, S.W.7, England.* 467 *pp.* $7.70.

An unusual handbook on water and sewage treatment, first published in 1950 in French, and now in its third French edition and first English translation. It refreshingly groups both water and sewage treatment in the same volume and labels both water treatment. It departs briskly from the conventional college textbook style used so extensively in this country. It has a relatively small amount of text but is supplied with extensive tabular and diagrammatic material. The book discusses United States as well as English and French water and sewage treatment, and the publishers make the unusual offer of free supplemental information to keep the text up-to-date.

The book will make a helpful addition to the library of water and sewage works officials who make a close and meticulous study of the subject. The publisher evidently is associated with the manufacture of water and sewage treatment equipment.

Assessment Study in State of Washington

A STUDY OF REAL PROPERTY ASSESSMENTS IN THE STATE OF WASHINGTON. *Subcommittee on Revenue and Taxation, Washington State Legislative Council, Olympia, Wash. December* 1954.

This is a massive study of the relationship of assessed valuation to sales values of properties in the State of Washington. Valuations in each of the 39 counties of the state are analyzed. The techniques used in making the study are explained, thus making the report valuable to researchers planning similar studies.

The sales values of properties in Washington must be reported to government officials in order to fulfill requirements of a 1% excise tax on real estate transactions.

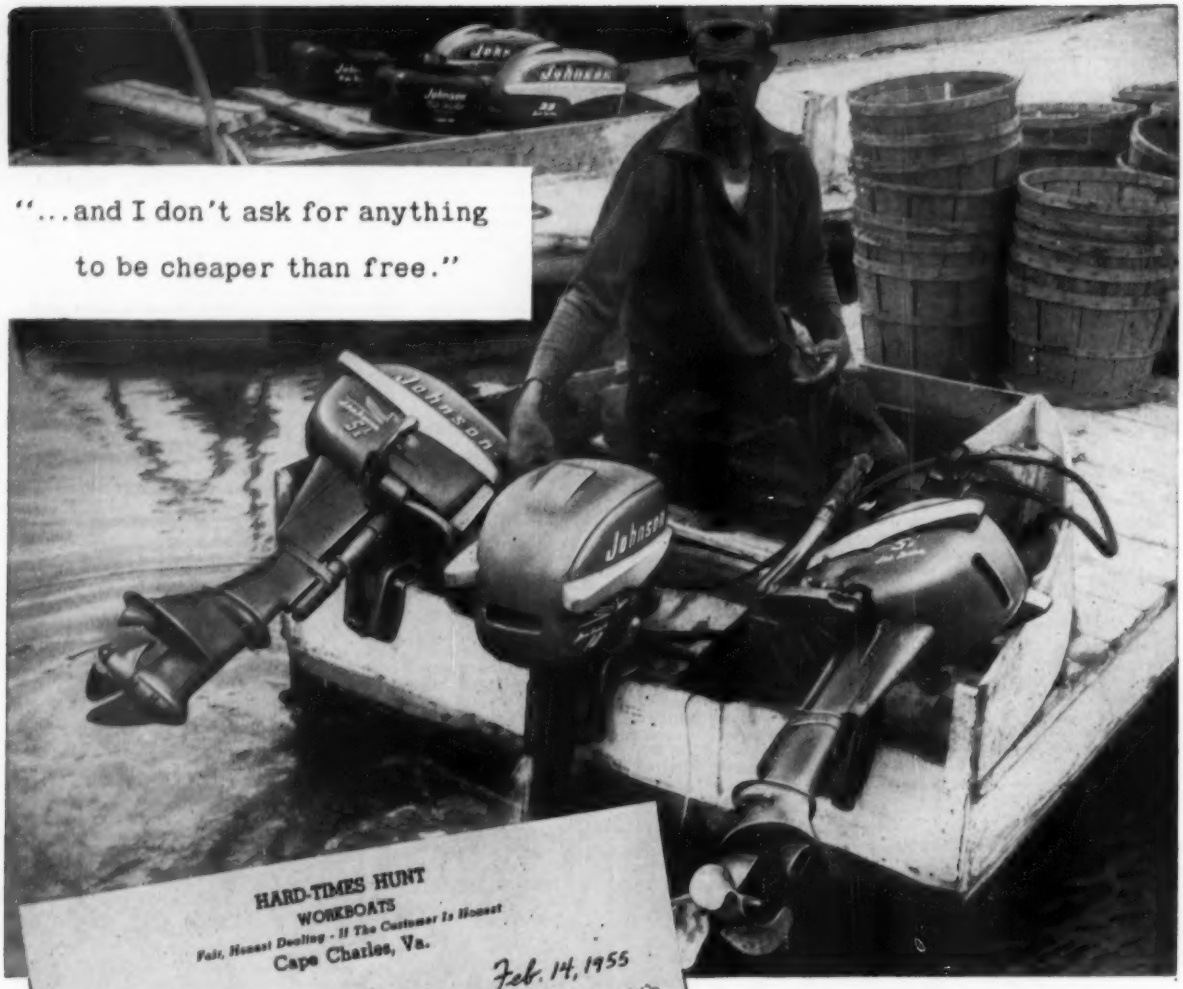
Industrial Site Zoning For Three Town Area in California

REPORT ON FINDINGS AND RECOMMENDATIONS RELATIVE TO ZONING OF INDUSTRIAL SITES IN VALLEJO, BENICIA, AND VACAVILLE, CALIF.

DIRECTORY OF INDUSTRIAL SITES IN VALLEJO, BENICIA, AND VACAVILLE, CALIFORNIA. *Robert P. Danielson, Industrial Planning Consultant, 525 Market St., San Francisco 5, Calif. August* 1954. *Unpaged.*

The bulk of Mr. Danielson's efforts was to map out the best sites for industrial development in the three town area. The sites are listed and mapped in the Directory and the information accompanying each includes present zoning, size of parcel, assessed value, owner, etc.

In his zoning report, Mr. Danielson recommends that all parcels of land whose highest and best use is industrial, be so zoned, that where necessary the zoning ordinances applying to the site be improved to prevent encroachments from uses incompatible to industrial areas; and that performance standards be written into the industrial sections of the various zoning ordinances.



Gentlemen:

Johnson outboards don't need testimonials but I'd like to tell you of my experience with them:

Several years ago, I was using a tow-boat, with 100 h.p. inboard, for moving scows, monitors and the various types of cargo lighters we use for taking and delivering oysters and shells locally. This boat cost about $2,000—and required a full-time operator.

I began to get some small outboards for the smaller boats, and found them so satisfactory that I now use outboards entirely and Johnsons exclusively.

During last year I bought six new motors (two 25's, two 10's and two 5's) for about $2,000, including insurance.

The two big motors propel a 40 ft. lighter, the two 10's are attached to a smaller lighter, and the 5's are used individually on 20 ft. scows.

This has been a rough winter—plenty of wind, snow and ice. The motors have been in use every day except when the ice was too thick to run through. During this past year, not one motor has failed to start and run—no time has been lost on the 10 mile run to market.

From accurate records, I find that the fuel and labor costs for this entire outfit are less than the cost of maintaining and operating a tow-boat, simply because self-propelled cargo boats and work scows can run to the beds cheaper than they can be towed by a larger boat and an extra man. I believe that the reduction in operating expenses and disposal of the unnecessary tow-boat has more than offset the amount spent for all six motors during the past year.

I anticipate that future economy, plus the high re-sale or trade-in value of Johnson motors, will maintain this little fleet in perpetual new condition, absolutely free, in comparison with other methods of propulsion—and I don't ask for anything to be cheaper than free.

Sincerely yours,

H. Hunt, Jr.

Johnson SEA-HORSES FOR DEPENDABILITY

Social Security—National, State, and Local

SYSTEMS OF SOCIAL SECURITY — UNITED STATES. *International Labor Office, Washington Branch, 1262 New Hampshire Ave., Washington 6, D. C.* 1954. 106 *pp.* 75 *cents.*

This book presents a complete description of the basic national system of old-age and survivors' insurance, the federal-state and state-local programs of public assistance, and the state systems of unemployment insurance and temporary disability insurance. The special social insurance program for railroad workers is also discussed. Passing reference is made to various related public programs that provide services rather than cash benefits, i.e., the programs administered at the federal level by the Children's Bureau, the public health programs administered by federal, state and local governments, and the vocational rehabilitation and employment services. Persons desiring a good general introduction to the various aspects of government social security programs in the United States will find this book of value.

For Ice Control

CALCIUM CHLORIDE—*Manual IM-1. Calcium Chloride Institute, 909 Ring Bldg., Washington 6, D. C.* 30 *pp. Free.*

Provides information on the latest and most efficient methods of using calcium chloride in the treatment of abrasives to provide immediate traction for motorists when applied to icy highways. Other data include charts and tables on skid tests, melting action of treated abrasives, and specifications.

Municipal Government in Canada

YOUR LOCAL GOVERNMENT—*By Donald C. Rowat. The MacMillan Company, 60 Fifth Ave., New York 11, N. Y.* 1955. 148 *pp.* $3.25.

All the important aspects of local government in Canada are presented in this book in an easy-to-read and informal style. Here are some of the topics touched on: Where local government gets its powers, how it is organized in each province, how it is administered and what it achieves, and its relation to the senior levels of government. At the same time the book questions many existing practices and points up problems that require solution if local government is to be maintained with strength. The author sets out a number of proposals designed to solve these problems.

Anyone not familiar with the Canadian municipal system will find this an ideal introduction.

Annexation Advantages

INVEST IN YOUR COMMUNITY . . . COLLECT GENEROUS DIVIDENDS. *Facts on the Proposed City Expansion. City Annexation Committee, 117 Morgan Sq., Spartanburg, S. C. Undated. Unpaged.*

The advantages of annexation to Spartanburg, S. C., to families living just outside that southern city, are explained in this attractive illustrated booklet. The kinds of services that various city departments would provide to the new residents are detailed. Estimates of tax savings to residents in areas subject to annexation are presented together with other necessary information relating to annexation procedures.

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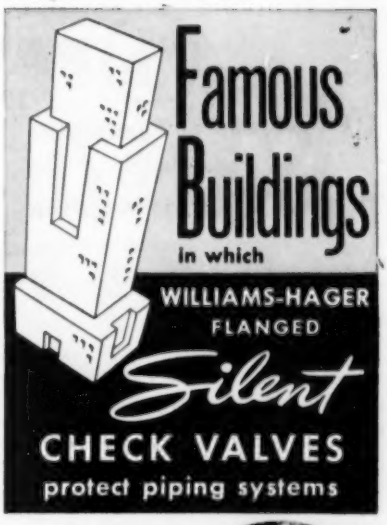

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Alcoa Building, Pittsburgh, Pa.
Hotel Drake, Chicago, Ill.
Rockefeller Center Buildings, New York, N.Y.
Fidelity Philadelphia Trust Building, Philadelphia, Pa.
Hotel Astor, New York, N.Y.
Metropolitan Life Insurance Building, New York, N.Y.
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Chicago Tribune Building, Chicago, Ill.
Federal Reserve Bank Building, Chicago, Ill.
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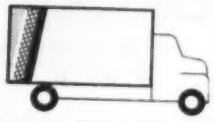
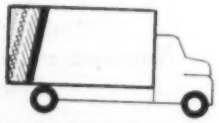


Loadings for the second cycle are compacted under the same force—and the refuse from cycle 1 gets another thorough compaction in the process.



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General Study of Public Administration

INTRODUCTION TO THE STUDY OF PUBLIC ADMINISTRATION. *By Leonard D. White. The MacMillan Company, 60 Fifth Ave., New York 11, N. Y. 1955. 531 pp. $6.*

This is the fourth edition of a long-standing text. Concepts of public administration are dealt with in a broad and analytic manner. Specific examples relating to the theories under discussion are drawn freely from the federal, state, and local levels of government.

Among the headings of the 34 chapters are the following: The Art of Administration; The Quest for Unity: the Chief Executive; The Quest for Unity: Departmental Organization and Management; National and State Administrative Relations with Local Officials; Organization for Fiscal Manangement; Budget Procedures and Practice; Budget Strategy and Tactics; Rise of Public Personnel Management; Position Classification; Loyalty and Security.

Dr. White is a distinguished leader in the public administration field, and this latest edition of his well-known work should be welcomed, not only by educators and their students, but by the fraternity of studious municipal officials.

Planning Studies for a Group of Connecticut Towns and Cities

PLAN OF DEVELOPMENT. *Town Planning Commission, Cheshire, Conn. February 1954. 44 pp.*

A PILOT STUDY. FOR A TOWN PLAN. *Town Plan and Zoning Commission, East Haven, Conn. Undated. 10 pp.*

PRELIMINARY DRAFT OF PROPOSED ZONING REGULATIONS. *East Lyme Planning Commission, East Lyme, Conn. March 1953. 36 pp.*

REPORT OF THE TOWN PLANNING AND ZONING COMMISSION. *Town Planning and Zoning Commission, North Haven, Conn. October 1952. Unpaged.*

A PLAN FOR DEVELOPMENT OF THE QUINNIPIAC VALLEY. *Town Plan and Zoning Commission, Town of North Haven, Conn. and Town Plan Commission, Town of Wallingford, Conn. January 1955. 3 pp.*

REDEVELOPMENT—APPLICATION FOR A FINAL ADVANCE. *Redevelopment Agency of the City of Norwich, Norwich, Conn. March 1953. 44 pp. plus tables.*

SHELTON MEANS BUSINESS. *City of Shelton, Shelton, Conn. Undated. Unpaged.*

A PILOT PLAN FOR TRUMBULL. *Trumbull Planning Commission, Trumbull, Conn. November 1954. 12 pp.*

REPORT OF SURVEYS AND PLANNING. *Waterbury Redevelopment Agency, Waterbury, Conn. February 1953. 88 pp.*

A STUDY FOR A PILOT PLAN—*Town of Winchester and City of Winsted. Winchester Town Plan Commission, Winchester, Conn. Undated. Unpaged.*

PILOT PLAN 1953. *Zoning and Town Plan Commission, Woodbridge, Conn. 1953. 12 pp.*

This is a representative group of planning studies and reports prepared by Technical Planning Associates, Inc., 104 Audubon St., New Haven, Conn. Since many of these reports deal with communities in the New Haven metropolitan area, it is interesting to note the combined pattern that results when some of these plans are put together. Perhaps the most striking thing to this reader is the pattern of enlarged industrial areas that the consultants recommend in each of the outlying towns of the region. Although the motivation in each case may be to strengthen the tax bases of the individual towns, the expansion of industrial districts in outlying suburban areas seems to offer the major opportunity for industrial growth in metropolitan areas where the central city has been almost fully developed.

Buffalo Housing Developments

BMHA NEWSLETTER, WINTER 1955—*Buffalo Municipal Housing Authority, 901 City Hall, Buffalo 2, N. Y. 12 pp.*

Detailed data on the Talbert Mall and Ellicott Mall housing developments, now ready for construction, are contained in this issue of *BMHA Newsletter*. The spring 1954 issue had information on the Commodore Perry Extension and the Kensington Heights developments in Buffalo.

Urban Renewal in Hawaii

AN URBAN RENEWAL PROGRAM FOR THE CITY AND COUNTY OF HONOLULU—*Honolulu Redevelopment Agency, City Hall, Honolulu, T. H. January 1955. 25 pp.*

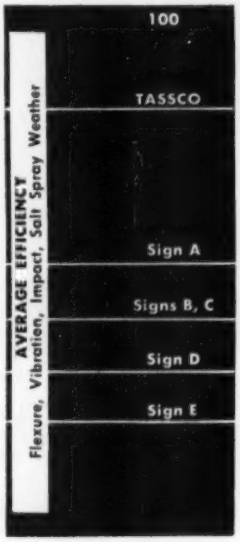
The causes of urban decay—such as downtown traffic congestion, inadequate housing, and lack of planning—are applied to Honolulu and an urban renewal program suggested for that city.

Other Reports Received

Administration & Government

KANSAS — State-Local Relations in Kansas. The State Department of Social Welfare. Prepared by the Governmental Research Center, University of Kansas, Lawrence, Kans. Special

the TASSCO story



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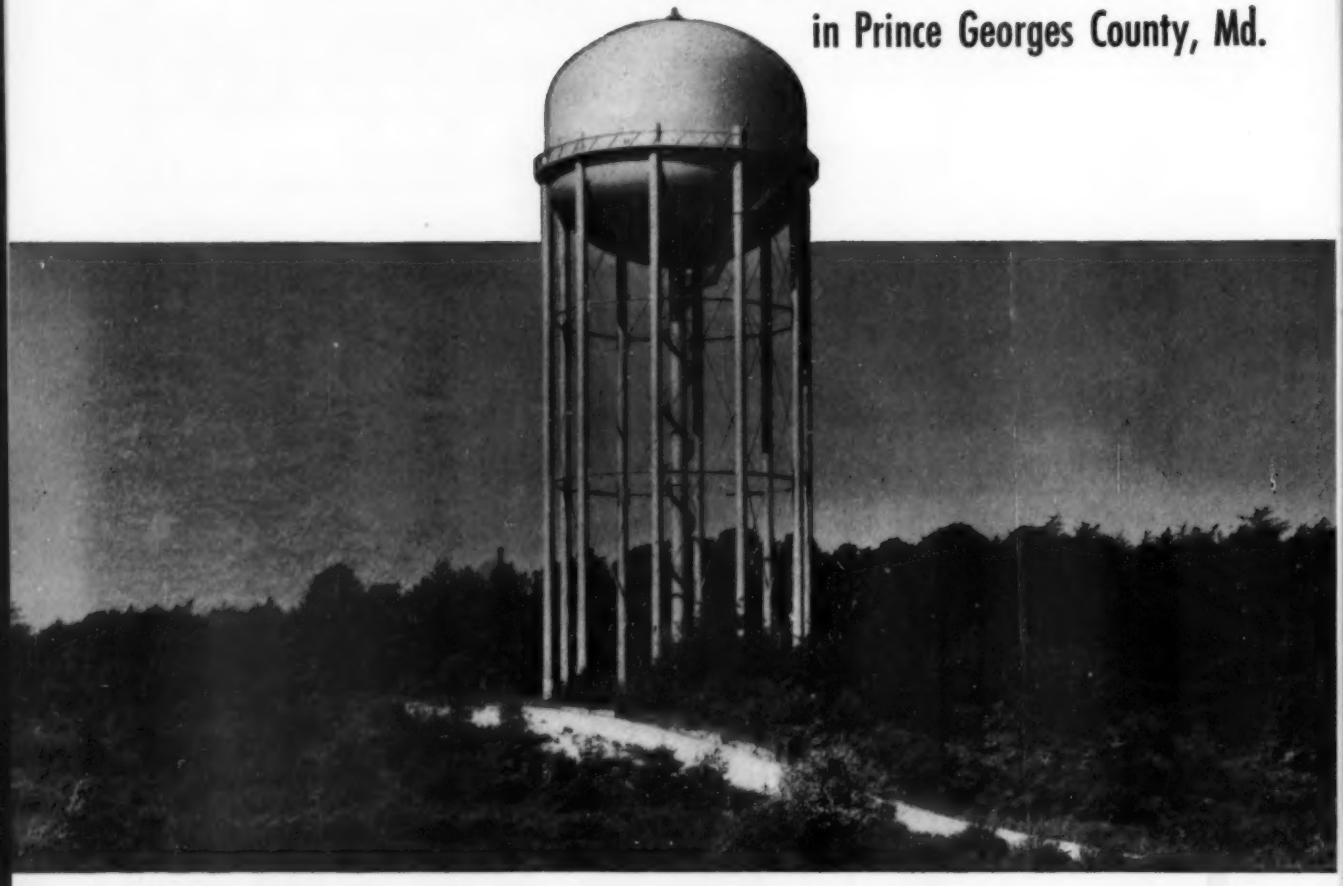

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SANTA CLARA, CAL., 619 Alviso Road

Research Report No. 61. 158 pp.

MICHIGAN—Three Aspects of Records Management. Papers in Public Administration No. 12. Made at Seventh Annual Management Institute. Bureau of Government, Institute of Public Administration, University of Michigan, Ann Arbor, Mich. 37 pp.

NEW SOUTH WALES, AUSTRALIA — Department of Local Government. Annual Report for the year ended 30th June, 1954. Available from the Under Secretary for Local Government, Sydney, N. S. W., No. 32. 49 pp. plus appendices.

NEW YORK, N. Y.—Foundations for Better Government. First Annual Report of Mayor Robert F. Wagner to the City Council and to the People of New York City. Jan.-Dec. 1954. Illus. Maps. 79 pp.

NOVA SCOTIA—Proceedings of the Forty-Ninth Annual Convention of the Union of Nova Scotia Municipalities, held at New Glasgow, Nova Scotia, August 25, 26, 27, 1954. Obtainable from Office of Mayor, Roy J. Bennett, New Glasgow. 114 pp.

GENERAL—Fifth Annual City Clerk's School—A Report. Prepared by Governmental Research Center, University of Kansas, Lawrence, Kans. Special Report No. 65. 70 pp.

Air Pollution

CINCINNATI, OHIO—1954 Annual Report of the Bureau of Smoke Inspection. Report prepared by Charles W. Gruber, Chief Smoke Inspector. Tables. 17 pp. plus appendices.

Annual Report

NEW ORLEANS, LA.—1955-56 Annual Report of the Mayor, de Lesseps S. Morrison. Illus. 64 pp.

WESTMOUNT, QUEBEC—Annual Report 1954. Submitted by T. J. J. Hughes, General Manager. Tables. 47 pp.

WINNIPEG, MANITOBA — Greater Winnipeg Water District. Annual Report for Year Ended December 31, 1954. Greater Winnipeg Water District, 455 Ellice Ave., Winnipeg, Manitoba. Illus. Tables. 47 pp.

Civil Defense

GENERAL—The States, Counties, Cities, and Civil Defense. For sale by the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C. Illus. 28 pp. 20 cents.

Finance & Taxation

ATLANTA GA. — Annual Report of City Comptroller, 1954. Submitted by R. Earl Landers, Comptroller's Office, Atlanta, Ga. Tables. 122 pp.

CHAPEL HILL, N. C.—Sources of County Revenue. Institute of Government, The University of North Carolina, Chapel Hill, N. C. Second Edition. Prepared by John Alexander McMahon, Assistant Director, Institute of Government. 65 pp.

PHILADELPHIA, PA.—Report on Philadelphia Fairmount Park Guard Pensions. Pennsylvania Economy League, 1321 Arch St., Philadelphia 7, Pa. December 30, 1954. Tables. 38 pp. plus appendices.

WASHINGTON—1955 Salaries in Washington Cities by Bert Balmer. Association of Washington Cities in cooperation with the Bureau of Governmental Research and Services, University of Washington, Seattle 5, Wash. No. 172. May 15, 1955. Tables. 47 pp.

COLORADO SPRINGS, COLO.—Annual Financial Report for the Fiscal Year Ended December 31, 1954. Submitted by Louise Huff, City Auditor. 56 pp.

Miscellaneous

SALINAS, CALIF.—Group Life Insurance and Retirement Plan. Presented by City Manager Ted B. Adsit. 12 pp.

Parks and Recreation

ST. CLAIR COUNTY, MICH.—1954 Outdoor Recreation. St. Clair County Planning Commission, 319 County-City Bldg., Port Huron, Mich. Illus. Graphs. 21 pp.

GENERAL—Second Annual Recreation Superintendents' School. Prepared by the Governmental Research Center, Lawrence, Kans. Special Report No. 64. April 1955. 50 pp.

Planning, Housing, and Zoning

CANADA—Housing in Canada. Vol. 9, No. 4. Published by Economic Re-

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1. Has Bigger Rated Capacity

New bucket handles a big 1¼-yd load — streamlined design now helps roll in large loads with less tractor effort. The back of the bucket has been brought forward and the sides extended to cut spillage, put more payload where it's wanted.

2. Helps the Operator Do More

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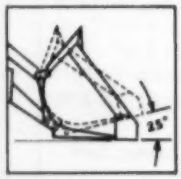

For added versatility, there is a two-position bucket available with both standard automatic return to digging position and operator-controlled tip-back. If the operator chooses to use the controlled tip-back, he can load the bucket, then tip it back approximately 25° before raising, assuring maximum output under special conditions such as downhill loading or loading loose materials.

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3. Works at Lower Cost

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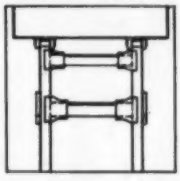

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search Department, Central Mortgage and Housing Corporation, Ottawa, Canada. Tables. 120 pp.

FORT WAYNE, IND.—Fort Wayne Zoning Ordinance. Available from Fred W. Menze, Building Commissioner, City Hall, Fort Wayne, Ind. 40 pp.

MISSISSIPPI — Tomorrow's Community. A guide for ambitious people wanting better communities. Published by Mississippi Economic Council, 17th Floor, Standard Life Bldg., P. O. Box 1849, Jackson, Miss. Illus. 96 pp. $1.

NEW YORK, N. Y.—Workable Program . . . an official plan for dealing with slums and blight. Available from Office of the Mayor, New York 7, N. Y. Illus. 7 pp.

PORTSMOUTH, N. H.—A Sound Investment in a Growing Portsmouth. Address inquiries to: Edward J. Abbott, Exec. Dir., Portsmouth Housing Authority, City Hall, Daniel St., Portsmouth, N. H. Mimeo. 5 pp.

WASHINGTON, D. C.—1954 Annual Report of the National Capital Housing Authority. National Capital Housing Authority, Washington 25, D. C.

Public Works

OAK PARK, ILL.—1954 Annual Report of the Department of Public Works. Available from Office of Acting Commissioner of Public Works, Mark E. Keane. Tables. 72 pp.

SAN FRANCISCO, CALIF.—Annual Report of the Department of Public Works City and County of San Francisco. Obtainable from Director's Office, Sherman P. Duckel. Illus. 139 pp. plus appendix.

Traffic

GENERAL—Parking Programs. Facts about selected Urban Parking Programs, in the United States. Traffic Engineering and Safety Department, American Automobile Association, 1712 G St. NW., Washington 6, D. C. Illus. 179 pp.

Water and Sewerage

GARDNER, MASS.—Annual Report of the Water Department and Sewer Department. 1954. Available from Jules N. Girouard, City Clerk. Tables. 27 pp.

INDIANAPOLIS, IND.—1954 Annual Report of Indianapolis Water Company, presented by The Board of Directors. Illus. Tables. Graphs. Map. 22 pp.

KANSAS CITY, KANS.—Blueprint for the Future. 1954 Report of Public Utilities of Kansas City. Illus. Tables. 39 pp.

MAINE—*Journal* Maine Water Utilities Association. Volume 31. Number 3. May 1955. Available from The Maine Water Utilities Association, 12 Williams St., Augusta, Maine. Illus. 40 pp.

TAUNTON, MASS. — Seventy-Ninth Annual Report of the Water Commissioners. Tables. Graph. 27 pp.

WINNIPEG, MANITOBA—1954 Annual Report. Greater Winnipeg Sanitary District, 455 Ellice Ave., Winnipeg, Manitoba. Illus. Tables. 47 pp.

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Hundreds of cities and industries, with the use of semi-skilled labor, have eliminated their grease and odor problem through the BIONETIC method. BIONETIC eliminates foul odors that start at the point of transmission of sewage on the collection system. These odors are due to activity of bacteria on accumulated greases and sludges.

Simplicity and Economy:

Extensive tests have shown that excellent control procedures can be set up by first incubating BIONETIC for at least four hours before application. BIONETIC supplies odor-consuming organisms and works to eliminate grease and sludge from the collection system.

Dosage rates usually start at five pounds at each point of application. (Most operators feed BIONETIC above the point of odor on the line.) Then make a slurry with about 30 gallons of water or settled sewage, allowing it to stand for about four hours before feeding at control points. Dump it all in at one time during low flows.

Once control is established, repeat doses may be cut back and frequency of dosing judged on basis of sewage characteristics, weather, and conditions of collection system.

For further information or literature, write:

Reliance Chemicals Corporation
Bionetic Division
P. O. Box 6724 Houston 5, Texas

LO-HED Reinforced Concrete Pipe for Culverts and Sewers

Greater Capacity . . . Faster, Easier Installation . . . Less Cost!

Elliptical LO-HED Pipe carries a greater flow than its round equivalent—in a minimum depth of cut with increased depth of cover. LO-HED Pipe is easier to lay, to grade and line. Smooth walls and tight joints insure maximum hydraulic capacity, with a minimum build-up of debris in the invert, even under low-flow conditions. Furnished in pre-tested strengths to answer any low headroom problem, including culverts under highways and railroads.

Write today for specifications on time and money-saving LO-HED Reinforced Concrete Pipe.

A full range of sizes in LO-HED Pipe is available for nearly all culvert and drainage installations. Shown above are the LO-HED equivalents of round pipe sizes 18″ – 24″ – 30″ – 36″ – 90″ – 120″.

AMERICAN-MARIETTA COMPANY
CONCRETE PRODUCTS DIVISION

GENERAL OFFICES
AMERICAN-MARIETTA BUILDING, 101 EAST ONTARIO STREET, CHICAGO 11, ILLINOIS PHONE: WHITEHALL 4-5600

DIVISIONS AND SUBSIDIARIES

B. C. Concrete Company, Ltd.
Concrete Conduit Company
Concrete Products Co. of America
Lamar Pipe and Tile Company
Lewistown Pipe Company
Universal Concrete Pipe Co.

Rehabilitation Encouraged By Partial Tax Relief

A BILL aimed to stimulate the rehabilitation of existing buildings is one of several housing measures enacted by the 1955 New York State Legislature.

It authorizes local governments to exempt from additional real estate taxes, for a period not to exceed 12 years, the additional value created in bringing substandard housing up to fair standards. It also provides for a tax abatement of an amount equal to 8⅓% of the cost of the alterations for a period of nine years.

The exemption and abatement are to be restricted to buildings approved by the local planning commission and in which the rents shall not exceed an amount fixed by the local legislative body. Local legislation is needed to implement this State law.

Huge Casualties Assumed in New York Civil Defense Test

THE five-megaton hydrogen bomb assumed to have exploded on New York City during the June 15-16 nationwide civil defense test resulted in an assumed killing and injuring of almost 60% of the city's daytime population. The estimated casualty breakdown was as follows: 2,991,280 dead; 1,776,899 injured; and 3,282,345 uninjured. Almost 75% of the deaths were assumed to have occurred on Manhattan Island, although "ground zero" was located just across the East River in Brooklyn. The staggering number of casualties assumed to have occurred as a result of the mock bombing of the nation's largest city amounts to more than four times the number of American casualties during World War II.

The pattern of destruction in New York was as follows:

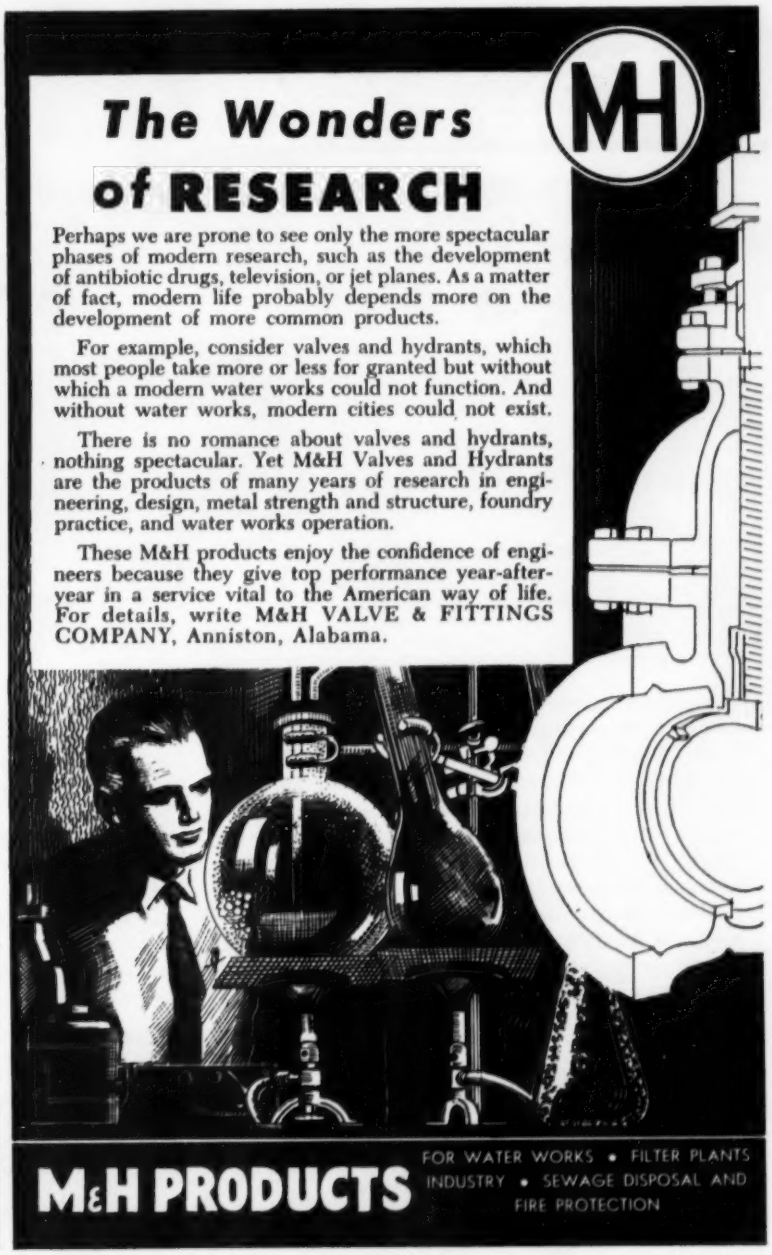
In the zone of total destruction all underground utilities would be destroyed, subways would be flooded, a radioactive mist would cover all things, and all buildings would be razed.

In the zone immediately beyond the area of total destruction practically all buildings would be rendered unusable; secondary fires would be springing up and spreading; hydrants, manholes, and valve fixtures would be inaccessible; telephone and electric wires aboveground would be unusable; streets, basements, and subways would be flooded; exposed live electric wires would constitute a serious hazard. The radioactive mist would be sweeping down wind and out to sea.

All of the water in the East River between Manhattan and Brooklyn and extending approximately one mile north and one mile south of ground zero, would be sucked up into the stratosphere as a radioactive cloud. Water in the East River north of the two-mile diameter would form a wave approximately 20 feet high, rushing northward up the East River, inundating Welfare Island and the shoreline of Queens and Manhattan on each side, receding in height until it levels out at about the north end of Welfare Island.

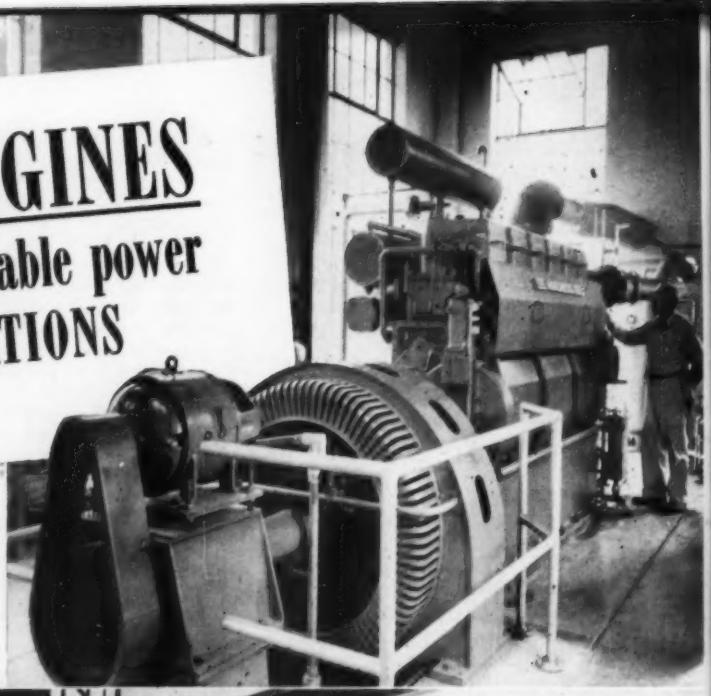
Similarly, the East River south of the two-mile diameter would rush southward toward Governor's Island in a wave 20 feet high, receding near Governor's Island but inundating the shorelines of both lower Manhattan and downtown Brooklyn.

In the week preceding the release of the description of the estimated destruction pattern for the nation's biggest city, *The New York Times* printed a series of searching articles on the status of civil defense in the nation. The series revealed that important CD policy issues were being left clouded by national officials and that individual citizens had few basic facts on which to decide whether to flee urban areas facing attack or to seek protection in their own shelters.

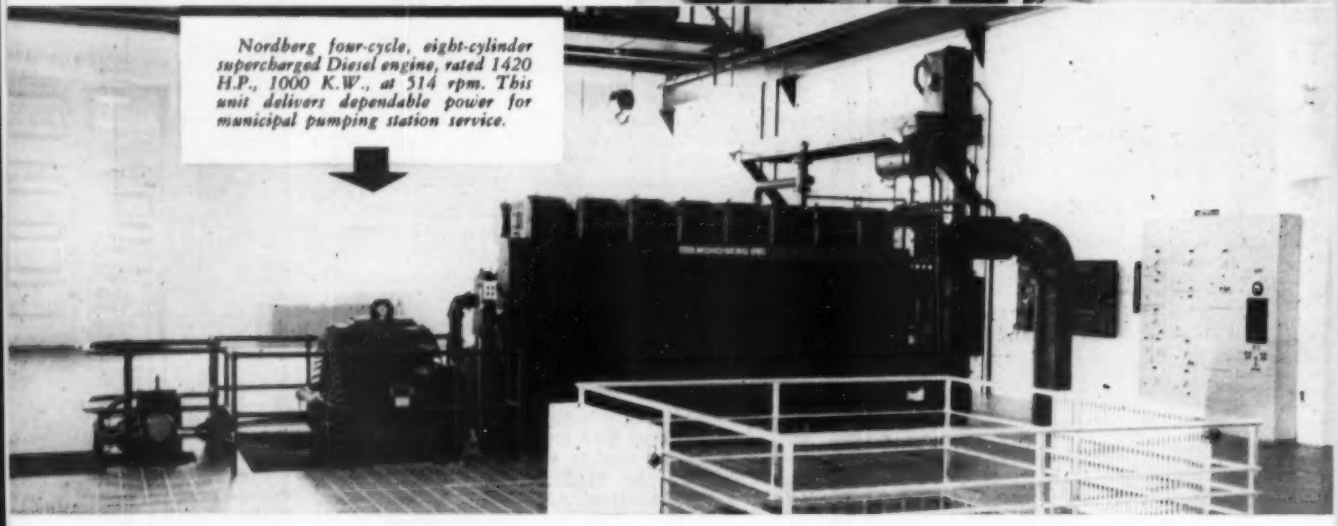

The Wonders of RESEARCH
Perhaps we are prone to see only the more spectacular phases of modern research, such as the development of antibiotic drugs, television, or jet planes. As a matter of fact, modern life probably depends more on the development of more common products.
For example, consider valves and hydrants, which most people take more or less for granted but without which a modern water works could not function. And without water works, modern cities could not exist.
There is no romance about valves and hydrants, nothing spectacular. Yet M&H Valves and Hydrants are the products of many years of research in engineering, design, metal strength and structure, foundry practice, and water works operation.
These M&H products enjoy the confidence of engineers because they give top performance year-after-year in a service vital to the American way of life. For details, write M&H VALVE & FITTINGS COMPANY, Anniston, Alabama.
M&H PRODUCTS
FOR WATER WORKS • FILTER PLANTS INDUSTRY • SEWAGE DISPOSAL AND FIRE PROTECTION

NORDBERG ENGINES

furnish low cost, dependable power for PUMPING STATIONS



Nordberg four-cycle, six-cylinder Duafuel® engine rated 375 H.P., 250 K.W., at 600 rpm. This unit, operating on natural gas, powers two motor-driven centrifugal water pumps.



Nordberg four-cycle, eight-cylinder supercharged Diesel engine, rated 1420 H.P., 1000 K.W., at 514 rpm. This unit delivers dependable power for municipal pumping station service.

WHEN it comes to furnishing reliable, low cost power for municipal and industrial pumping operations, Nordberg engines have been thoroughly job-tested and proved in numerous installations in many parts of the world. Two typical Nordberg Diesel Engine Generator units are shown here, each providing the necessary power to keep electrically-driven water pumps on the job, day-in, day-out.

Built to provide the most economical power plant with low first cost as well as low operating costs, Nordberg engines will efficiently burn Diesel fuel, natural gas, or any combination of both—as well as sewage gas, manufactured gas and propane. With this wide fuel selection Nordberg can furnish the most efficient unit to meet specific power requirements . . . for pumping applications and for main or stand-by-power in almost every class of service.

Nordberg, as builders of America's largest line of heavy duty engines, in sizes from 10 to over 12,000 H.P., backed by over a half century of specialized machinery building experience, can give you valuable assistance in solving *your* particular power problem. Call or write for further information. *Nordberg Mfg. Co., Milwaukee, Wis.*

NORDBERG

DIESEL • DUAFUEL® AND SPARK-FIRED GAS ENGINES

P554

Conventions—When and Where

(Continued from page 179)

***Oct. 5-7—Albany, Ga.**
GEORGIA MUNICIPAL ASSOCIATION. Annual Meeting (Radium Springs). Sec., Zach Arnold, 1403 C & S Bank Bldg., Atlanta, Ga.

Oct. 5-8—Bretton Woods, N. H.
INTERNATIONAL CITY MANAGERS' ASSOCIATION. Annual Convention (Mt. Washington Hotel). Dir., Clarence E. Ridley, 1313 E. 60th St., Chicago 37, Ill.

***Oct. 9-10—Bethlehem, Pa.**
LEAGUE OF CITIES OF THE THIRD CLASS OF PENNSYLVANIA. Annual Meeting (Hotel Bethlehem). Exec. Dir., Walter Greenwood, 302 Municipal Bldg., Harrisburg, Pa.

Oct. 10-13—Atlantic City, N. J.
FEDERATION OF SEWAGE AND INDUSTRIAL WASTES ASSOCIATIONS. Annual meeting (Ambassador Hotel). Exec. Sec.—Editor, Ralph E. Fuhrman, 4435 Wisconsin Ave. NW., Washington, D. C.

***Oct. 11-13—Gilbertsville, Ky.**
KENTUCKY MUNICIPAL LEAGUE. Annual Convention (Kentucky Dam Village). Exec. Sec., Carl B. Wachs, Room 64, McVey Hall, University of Kentucky, Lexington, Ky.

***Oct. 13-14—Madison, Wis.**
LEAGUE OF WISCONSIN MUNICIPALITIES. Annual Convention (Hotel Loraine). Exec. Sec., Ed Johnson, 30 E. Johnson St., Madison 3, Wis.

***Oct. 16-19—San Antonio, Texas**
AMERICAN WATER WORKS ASSOCIATION—Southwest Section. Annual Meeting (Gunter Hotel). Sec.-Treas., Leslie A. Jackson, Robinson Auditorium, Little Rock, Ark.

***Oct. 16-20—Chicago, Ill.**
ASSOCIATION OF SCHOOL BUSINESS OFFICIALS OF UNITED STATES AND CANADA. Annual Convention (Sherman Hotel). Sec.-Treas., H. W. Anderson, 703 Kalamazoo Bldg., Kalamazoo, Mich.

Oct. 16-20—New York, N. Y.
NATIONAL ASSOCIATION OF ASSESSING OFFICERS. International Conference on Assessment Administration (Hotel New Yorker). Exec. Dir., Albert W. Noonan, 1313 E. 60th St., Chicago 37, Ill.

Oct. 16-19—Washington, D. C.
NATIONAL INSTITUTE OF GOVERNMENTAL PURCHASING. Annual Convention (Shoreham Hotel). Exec. Dir., Albert H. Hall, 730 Jackson Place NW., Washington, D. C.

Oct. 17-20—Cleveland, Ohio
NATIONAL ASSOCIATION OF HOUSING AND REDEVELOPMENT OFFICIALS. Annual Convention (Statler Hotel). Exec. Dir., John Lange, 1313 E. 60th St., Chicago 37, Ill.

Oct. 17-21—Chicago, Ill.
NATIONAL SAFETY CONGRESS AND EXPOSITION. (Conrad Hilton Hotel). Sec., R. L. Forney, National Safety Council, 425 N. Michigan Ave., Chicago 11, Ill.

***Oct. 17-21—Detroit, Mich.**
NATIONAL TAX ASSOCIATION. Annual Convention (Statler Hotel). Sec., Ronald B. Welch, NTA, P. O. Box 1799, Sacramento, Calif.

***Oct. 19-20—Springfield, Mo.**
MISSOURI MUNICIPAL LEAGUE. Annual Convention (Kentwood Arms Hotel). Exec. Dir., Bruce J. Carl, 212-214 Guitar Bldg., Columbia, Mo.

***Oct. 19-21—Des Moines, Iowa**
AMERICAN WATER WORKS ASSOCIATION—Iowa Section. Annual Meeting (Fort Des Moines). Exec. Sec., H. V. Pedersen, Supt. & Gen. Mgr., Marshalltown Water Works, Marshalltown, Iowa.

Oct. 24-27—Pittsburgh, Pa.
INSTITUTE OF TRAFFIC ENGINEERS. Annual Convention (William Penn Hotel). Exec. Sec., M. M. Todd, 211 Strathcona Hall, New Haven 11, Conn.

Oct. 25-28—Sacramento, Calif.
AMERICAN WATER WORKS ASSOCIATION—California Section. Annual Meeting (Senator Hotel). Sec.-Treas., H. F. Jerauld, 1040 Manzanita Ave., Pasadena 3, Calif.

***Nov. 14-18—Kansas City, Mo.**
AMERICAN PUBLIC HEALTH ASSOCIATION—Annual Convention (Municipal Auditorium). Exec. Sec., Reginald D. Atwater, M. D., 1790 Broadway, New York 19, N. Y.

***Nov. 20-23—Miami, Fla.**
NATIONAL INSTITUTE OF MUNICIPAL LAW OFFICERS. Annual Convention (McAllister Hotel). Exec. Sec., Charles S. Rhyne, General Counsel, 726 Jackson Place NW., Washington 6, D. C.

***Nov. 28-29—Miami, Fla.**
GOVERNMENT PUBLIC RELATIONS ASSOCIATION. Annual Convention (McAllister Hotel), Exec. Dir., Mrs. Pan Dodd Wheeler, Box 8260, University of Tennessee, Knoxville, Tenn.

***Nov. 29-Dec. 3—Washington, D. C.**
AMERICAN PUBLIC WELFARE ASSOCIATION. Annual Convention (Statler Hotel). Dir., Loula Dunn, 1313 E. 60th St., Chicago 37, Ill.

***Dec. 4-9—New Orleans, La.**
AMERICAN ASSOCIATION OF STATE HIGHWAY OFFICIALS. Annual Convention (Jung Hotel). Exec. Sec., A. E. Johnson, 917 National Press Bldg., Washington 4, D. C.

Jan. 11-14—Miami Beach, Fla.
AMERICAN ROAD BUILDERS' ASSOCIATION. Annual Convention (Municipal Auditorium). Exec. Vice-Pres., Gen. Eugene Reybold, World Center Bldg., Washington 6, D. C.

No Stooping!

"...no needle nervousness...pinpoint accuracy,

THE NEW AQUA VALVE BOX LOCATOR

has our unqualified approval!"

W. F. Becker, Chief Inspector
The Ohio Fuel Gas Company
Columbus, Ohio

Quicker, Surer Locations Every Time

The miraculous new Aqua Valve Box Locator makes obsolete all previous types. New design, perfected after two years of engineering research means **absolute minimum of needle spinning action.**

The new Aqua Extra Conductor development makes failure practically impossible, and it is **exclusive in the location instrument field!**

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- New high impact Styron plastic case virtually indestructible
- Compact, convenient, non-variable
- Guaranteed to function regardless of ground cover

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NAME.....
COMPANY.....
STREET.....
CITY..... ZONE..... STATE.....

Purchasing News

Information for officials interested in equipment and services for the construction, operation and maintenance of municipal utilities

World's Largest Tractor Exhibition

The press previewed, last June 2, one of the largest tractor expositions ever held. The exposition was the work of the Caterpillar Tractor Co., held for the benefit of its huge dealer organization. The idea was to give these men an opportunity to see the company's entire line of equipment, including machines still on the production line and those about to be unveiled.

More than 500 distributors, auxiliary equipment manufacturers, and field representatives traveled to the company's home plant in Peoria from every state in the nation, province in Canada, and almost every nation in the free world. The press was represented by over 100 editors, publishers, and members of publications and newspapers.

The dealers met in two groups, domestic and export, each staying one week. Twelve manufacturing firms who build products used with Caterpillar machines participated. Each group spent a day at the company's Joliet plant and the new Decatur plant which is nearing completion. They also spent much time at the proving grounds where they saw displays and demonstrations of the Caterpillar line in operation.

At the meeting, the company announced that its DW15 tractor, just completing its first year in the field, has undergone some major design changes. It will feature a new 186-hp engine, and a new transmission case designed to assure more positive lubrication. It will be equipped with the No. 27 cable control for improved, positive scraper response and increased cable-control clutch and brake life. The "Cable Saver," too, will be standard equipment.

The company also announced two new additions to its rubber-tired tractor line. They are the DW21 (Series C) and the DW20 (Series E), both featuring more horsepower and major design changes over current models. Caterpillar has also designed matching scraper units that provide wide, long bowls that have capacities of 18 cubic yards struck and 25 yards heaped.

Almost $2,000,000 worth of earth-moving equipment was paraded before hundreds of visitors on Caterpillar's proving grounds located in Peoria, Ill.

The oil clutch, currently in use on Caterpillar track-type tractors, is now being introduced in the No. 12 motor grader as standard equipment. The company reported field tests showing that the clutch facings undergo very little wear, averaging 0.0025 of an inch in 1,000 hours of operation. The facings are 1/16 of an inch thick. The company also reports that the oil clutch reduces pedal effort and permits the grader to operate for long periods without clutch adjustment.

For additional information write directly to the CATERPILLAR TRACTOR CO., PEORIA, ILL., indicating the product in which you are interested, or you may use the Post Card on the insert following Page 34. Circle No. 837.

Motorized Wheelbarrow Replaces Hand Cart

A fast, efficient way to handle building materials on municipal construction jobs, is to use this new Prime-Mover powered wheelbarrow, introduced by THE PRIME-MOVER CO., MUSCATINE, IA. The unit is 64 inches long and 31½ inches wide, and hauls up to ¾-ton of materials. It operates on the same type ramps, runways, hoists and towers normally used for hand carts.

Positive controls allow the most inexperienced laborer to operate the wheelbarrow safely and efficiently. The Prime-Mover maneuvers large loads into close quarters, over rough ground, up steep grades, and through narrow openings. It eliminates in-between handling of materials on construction jobs, and is said to increase the productivity of manpower.

The new wheelbarrow offers a quick method of changeover from dump bucket

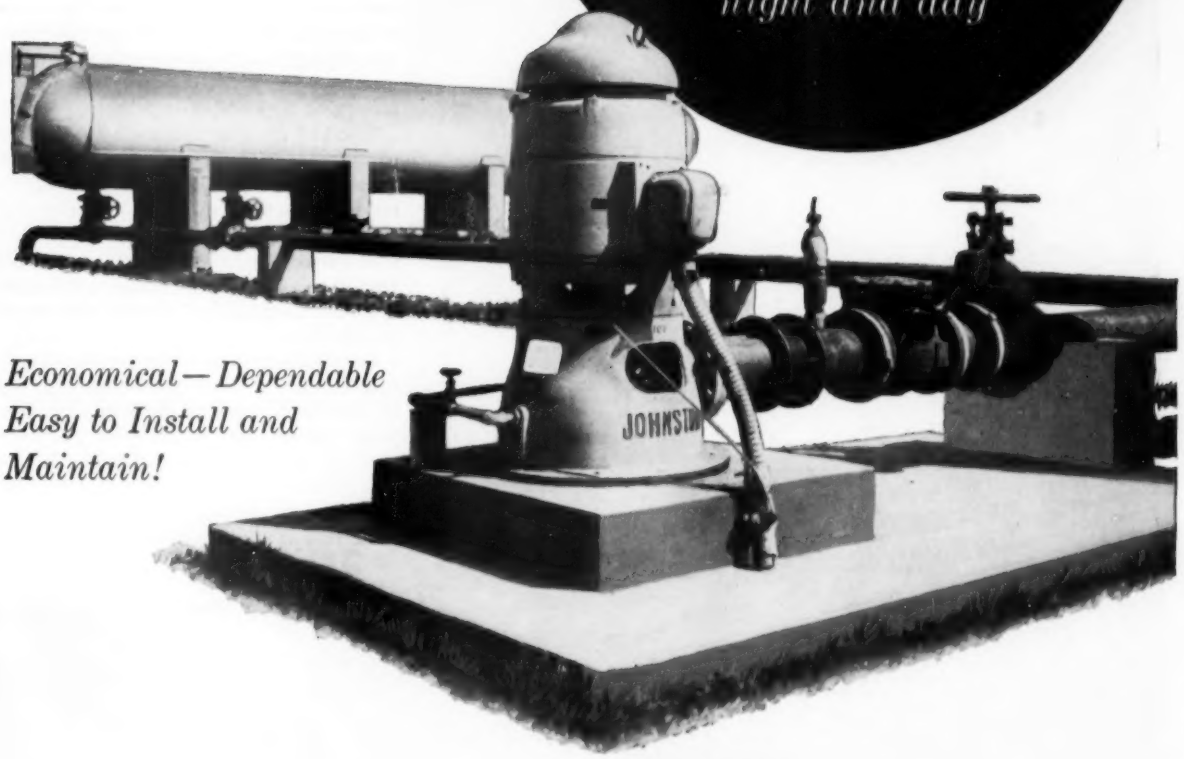
to flatbed. The beds latch in place so that the operator can immediately change his Prime-Movers from hauling concrete to hauling solid materials. A dump bucket with rounded corners hauls 10 cubic feet (liquid level), and up to 16 cubic feet (heaped). Flatbeds, available in two sizes, adapt the Prime-Mover for carrying solid building materials.

For additional information on the new wheelbarrow, write directly to the manufacturer, or you may use the Post Card on the insert following Page 34. Circle No. 839.

Wherever water is needed —you'll find

JOHNSTON
VERTICAL PUMPS

are on the job night and day



Economical—Dependable
Easy to Install and Maintain!

Municipal and county water engineers are among the shrewdest judges of pumps. They know from experience that water supply pumps must be designed to stand up under hard usage day and night, year after year, with minimum down time for repairs. Shown above is a Johnston Pump in use by the Fresno County Water Works District No. 7 —one of many typical Johnston water supply installations. Write for details.

JOHNSTON VERTICAL PUMPS

AC-75

JOHNSTON PUMP COMPANY

Founded in 1909

Bin "K," Pasadena 15, California

☐ Kindly send colorful bulletin ☐ Have representative call

Name_____

Address_____

City_____ Zone____ State_____

How Oliver Iron Age mist sprayer stretches work force in busy summer months

Spraying demands crop up heaviest during warm months when tree pests, flies and mosquitoes are most prevalent. At the same time, work demands are usually heaviest on park and maintenance crews.

That's why so many cities and towns are turning to the speed, efficiency and cost savings of the Oliver Iron Age 125 mist sprayer. For this two-man unit gets around fast—uses less spray and does two to three times more work than old fashioned, three-man hydraulic rigs. And the mist sprayer gives complete control of tree pests, flies and mosquitoes.

The 125 sprayer will reach the highest shade trees with a fine, long-lasting mist that covers every leaf and limb. There's no drip from trees to arouse property and car owners. And both wettable powders and emulsified liquids may be used. Sprayer controls are easy to operate, and the turret rotates 360° for full control of the air blast.

For applying insecticides in those hard-to-get-at spots, the 125 mist sprayer can be used with hose and gun assembly. See your Oliver Distributor. Find out how you can get more done, faster at lower cost with the Oliver Iron Age 125 mist sprayer. Ask, too, about Oliver's complete line of wheel and crawler tractors.

A separate gun and hose assembly may be attached to the pump motor of the 125 mist sprayer. Perfect for spraying inaccessible spots.

THE OLIVER CORPORATION

400 West Madison Street, Chicago 6, Illinois

OLIVER IRON AGE

New Push-Button Signal Installation

Milwaukee, Wis. is already familiar with push-button traffic signals since it uses them at one intersection. City officials, however, recently had a second opportunity to inspect the operation of a push-button signal at the plant of the Miller Brewing Co. The signal is a product of the EAGLE SIGNAL CORP., MOLINE, ILL. Note how the signs under the single signal head are fastened to the pole by steel straps made by A. J. Gerrard & Co., Melrose Park, Ill.

Inspecting the new signal installation (left to right) are: Alderman James H. Collins; Joseph Fellner, of Miller; John M. Schoenecker, captain of traffic; R. P. Knoll, of Miller; Police Inspector Hubert E. Dax; John Doyne, supervisor of the Milwaukee County board; George Steiner, of Miller; and Captain George Fuhr.

Marmon-Herrington Buys Cardox Corp.

Purchase of the Cardox Corp., Chicago, Ill., by the Marmon-Herrington Co., Inc., is announced by A. W. Herrington, chairman of the M-H board of directors. Cardox, manufacturers of chemicals, mining equipment and fire-fighting equipment, will be operated as a separate corporation, retaining its present executive staff. The company maintains manufacturing plants at Monee, Ill.; Cabin Creek, W. Va.; Ventura and San Jose, Calif.; Claremore, Okla.; and Ottumwa, Ia. A new Cardox plant is nearing completion at Memphis, Tenn.

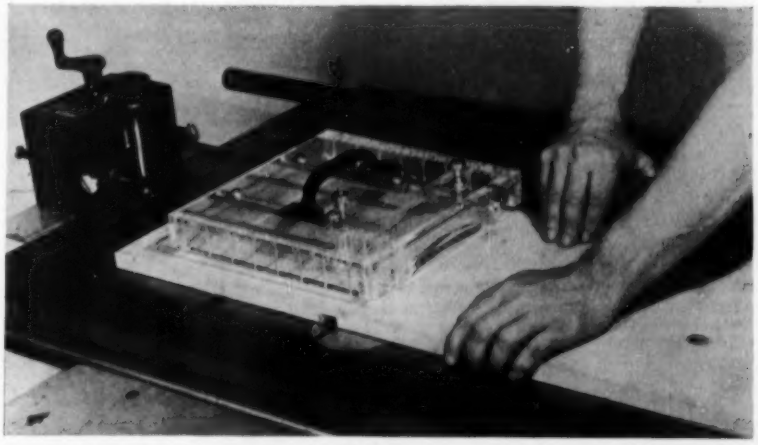
Marmon-Herrington, located at Indianapolis, Ind., manufactures All-Wheel-Drive trucks, trolley coaches, motor coaches, fire trucks, tow trucks, school bus chassis, and other specialized vehicles.

New Sales Divisions

THE FOXBORO CO., FOXBORO, MASS., recently established 10 regional sales divisions, with territories arranged for maximum service to industrial instrument users. This new regional structure is being administered by H. O. Ehrisman, general sales manager, and J. J. Burnett, field sales manager, and will permit full utilization of the company's 48 branch offices located throughout the country.

A regional manager has been appointed for each sales region. Offices and managers include, New England, H. H. Michelmore; New York, E. R. Huckman; Philadelphia, J. B. Deaderick; Pittsburgh, A. H. Shafer; Atlanta, E. W. Prendergast; Cleveland, H. L. Lee; Chicago, J. J. Connelly; Dallas, E. L. Stark; Houston, L. W. Parten; and San Francisco, R. E. Rogers.

New Safety Guard for Power Saws



New Brett-Guard safety guard and guide in use at Chelsea Vocational High School.

An increasing number of communities are following New York City's lead by approving the use of this new safety guard for table saws in schools, institutions and municipal workshops. Called the Brett-Guard Safety Guard and Guide, the device offers complete protection to operators of any conventional table saw with blades from 6 to 16 inches in diameter. It is made by the BRETT-GUARD CO., 5 W. SHEFFIELD AVE., ENGLEWOOD, N. J.

The new safety device features a guard standard of cast aluminum, and a transparent shield of shatter-resistant, ½-inch thick Plexiglas plastic. This plastic covers the saw while allowing full vision and complete accuracy in a variety of operations, such as mitering, cross cutting, compound mitering, ripping rabbeting, tenoning, dadoing feathering, diagonal sawing, template cutting, drop sawing, and plowing and tongueing.

Full details are available directly from the manufacturer, or you may use the Post Card located for your convenience on the insert following Page 34. Circle No. 853.

take a look at a loader that "Measures Up" to your requirements

TRACTOMOTIVE
TL-10 TRACTO LOADER

It's built as an industrial wheel loader from the ground up! Has years of HYDRAULIC TORQUE CONVERTER experience "under its bucket." Brings you the added advantages of a CLUTCH-TYPE TRANSMISSION which eliminates most gear shifting. Saves time maneuvering with short turning radius and bucket-over-drive-wheels design. Powered by the new Allis-Chalmers POWER-CRATER engine — high-octane performance on regular gasoline.

Has 1-cu-yd tip-back bucket, 63-brake hp, weighs 11,700 lb! You get added versatility with interchangeable attachments — 2-yd Light Materials Bucket, Lift Fork, Crane Hook, Backfiller Blade.

Ask your Allis-Chalmers Industrial Tractor Dealer for an on-the-job demonstration. Take a look at a loader that measures up to your requirements.

"MEASURES UP" GETTING LOAD because there is quick, positive crowding action — no slow, mushy starts. The Tractomotive Hydraulic Torque Converter Drive multiplies engine torque THREE TIMES . . . and there is the traction you need to take advantage of this extra torque with ample weight and big driving wheels. Result — heaping loads, fast!

"MEASURES UP" ON MANEUVERING Works in areas that would normally accommodate only lower capacity machines. Turning radius is only 11 ft at tip of bucket. You can go into a 10-ft bin from a 9-ft aisle! Bucket over drive wheels utilizes weight of load for greater traction . . . eases weight on rear steering wheels. Result — maneuvering time saved, production time gained!

"MEASURES UP" DELIVERING LOAD There is fast getaway, fast delivery of load with the combined advantages of the Clutch-Type Transmission and Hydraulic Torque Converter Drive. A single lever controls backward and forward operation. Highest possible travel speed in selected gear range is automatically obtained through the torque converter. Result — shifting time saved, travel time gained, more trips made!

SEE THE LATEST IN 4-WHEEL DRIVE EXCAVATOR-LOADERS, TOO!

Tractomotive TL-12 Tracto-Loader

A combination of advantages makes it outstanding on excavating-loading... has a 1⅛-cu-yd Tip-Back Bucket, 4-Wheel Drive, Hydraulic Torque Converter Drive, Clutch-Type Transmission and Rear Wheel Power Steering. But see for yourself . . . on your job. Ask your Allis-Chalmers dealer for a demonstration.

POWER-CRATER is an Allis-Chalmers trademark.

SOLD AND SERVICED BY YOUR ALLIS-CHALMERS INDUSTRIAL TRACTOR DEALER

TRACTOMOTIVE

Tracto-Loaders • Tracto-Shovels • Side Booms and Hydraulic Rippers for Allis-Chalmers Crawler Tractors • Loader and Shoulder Maintainer for Allis-Chalmers "D" Motor Grader

TRACTOMOTIVE CORPORATION • DEERFIELD, ILLINOIS

Business Up in Grimm Signs and Plates

Sample assortment of signs and plates included in the new Grimm kit.

The 80-year-old GRIMM STAMP & BADGE CO., 8105 ROSALIE AVE., ST. LOUIS 17, MO., is now established in a new factory built for the express purpose of manufacturing traffic signs, vehicle license plates and a wide variety of special embossed signs. The company is looking for additional representatives to handle the line.

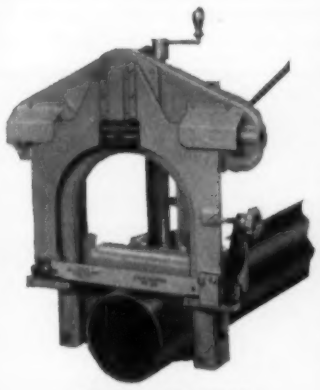
An innovation is a new sample kit made of black artificial leather with pockets for the sample signs and license plates. These signs and plates are made of embossed steel and finished with baked enamel.

Mack Gets $9,000,000 Bus Contract

The City of San Francisco recently awarded MACK TRUCKS, INC., 350 FIFTH AVE., NEW YORK 1, N. Y., a bus order for 440 units at a cost of over $9,000,000, according to Mack President P. O. Peterson. This is reported to be one of the largest single awards for bus equipment made by any city since World War II.

The lightweight buses will have a seating capacity for 48 passengers, and will be 102 inches wide for maximum passenger comfort. To negotiate the steep grades in San Francisco, the vehicles will be powered by Mack's Thermodyne turbo-charged diesel engine.

According to Mr. Peterson, Mack will deliver 100 of the buses during the current year, with the balance to follow over the next five years.



NEW WACHS PORTABLE POWER SAW

No Flame—Safe Cuts Under Hazardous Conditions!

FASTER—SAFER—ACCURATE!

Cuts 2", 4", 6" & 8"
Cast Iron and Steel Pipe

WACHS GUILLOTINE SAW FACTS—

- Cuts Fast
- Cuts Clean
- Cuts Square
- Height 28"
- Width 22¼"
- Depth 12"
- Set up time, less than one minute
- Power—electric or air motor
- Weight 105 pounds

For further information write to:

THE E. H. WACHS COMPANY
1525 N. Dayton Street • Chicago 22, Illinois

BEST **UNIFORM COMPANY**
305 E. Fordham Road, New York 58, N. Y.

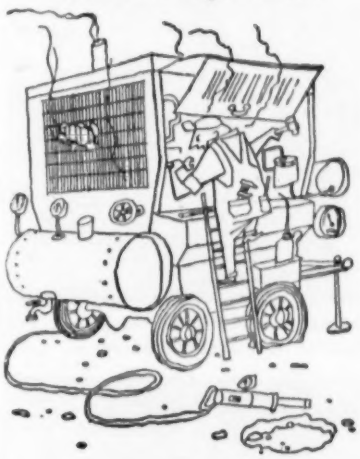
Specialists in Municipal Uniforms

Police and Fire Department, also, all other types of uniforms for city employees.

Send us your "specs" and we'll send you descriptive literature.

BEST UNIFORM CO. 305 E. FORDHAM ROAD NEW YORK 58, N. Y.

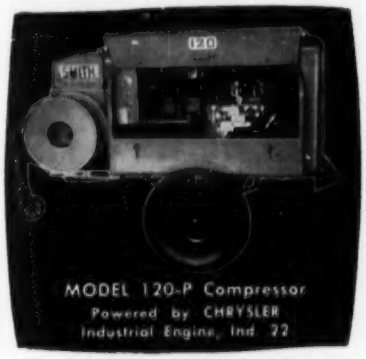
Why lose money with big, oversize compressors?



a

SMITH COMPRESSOR

will do the job for less!



Save your big compressors for big jobs! The Smith 120-P will handle the majority of your compressor jobs, for less! Heavy-duty Chrysler engine has 413 cu. in. displacement. Simple, compact compressor design—no coupling or clutch. Compressor pistons operate at 120° apart for smooth, even flow of air. Corrosion-free manganese bronze compressor valves with stainless steel discs. Finned after-cooler reduces air temperature approx. 200°, gives longer hose life!

. . Also the Smith 70-P Compressor

MAIL COUPON NOW!

Gordon Smith & Company, Inc.
425 College St., Bowling Green, Ky.
Send complete literature and prices on Smith 120-P and 70-P compressors.

NAME_____

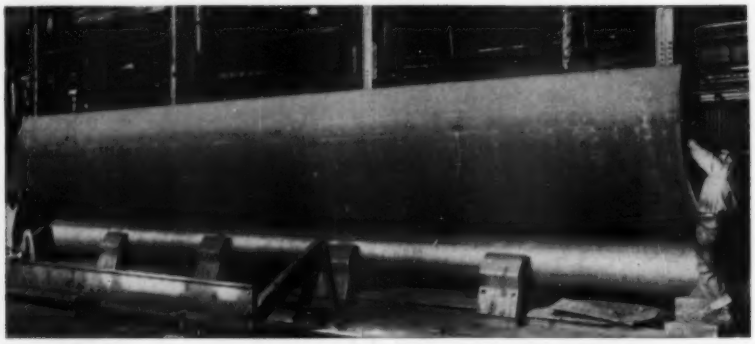
ADDRESS_____

CITY_____ **STATE**_____

☐ **Also send name of nearest dealer.**

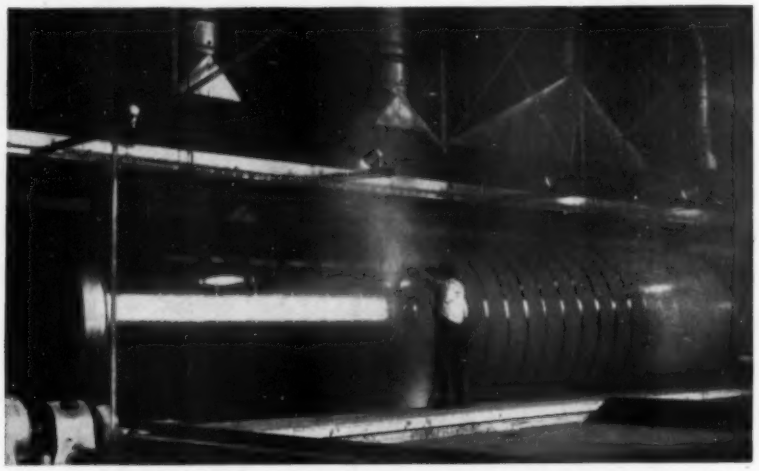
96-In. ID Pipe--From Shop to Site

ACCURATE BEVELING of the plate edges ensures tight longitudinal welds.



POWERFUL 40-FT ROLLS are shown here curving 9/16-in.-thick plates into one-third cylinders. After tack-welding the plates are ready for final welding.

THE PIPE IS WELDED from inside and out by the submerged-arc process.



NEWLY ENLARGED FACILITIES at Steelton permit the fabrication, grit-blasting, lining, coating and wrapping of unusually large-diameter pipe — up to 96 in. ID.

COMPARE THE SIZE of the pipe with the truck and driver. Each length is 40 ft.

BEING INSTALLED near Baltimore where it will serve as an industrial water main, this 23,800-ft line required 597 lengths totalling approx. 7,800 tons.

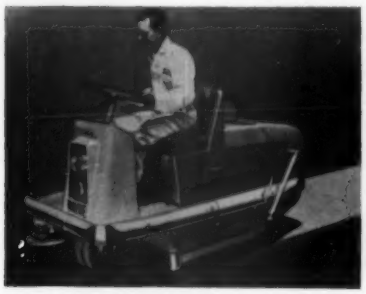
When planning your next water or sewage line, we suggest that you consider the many advantages of Bethlehem Tar-Enameled Steel Pipe. For further information, please contact the Bethlehem sales office nearest you.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation. *Export Distributor:* Bethlehem Steel Export Corporation

BETHLEHEM STEEL

Sweeps Large Areas Quickly



New Wayne model will sweep over 100,000 square feet per hour.

Two new industrial power sweepers, Models 60-5 and 60-6, feature a range of sweeping paths from 36 inches to 68 inches, available with two side brooms, and a maximum sweeping coverage exceeding 100,000 square feet per hour. They are suitable for use in sweeping parkways, alleys, sidewalks, and parking areas. These units eliminate the time and effort wasted in emptying a dust bag. With new "Filter-Vac" dust control, all fine dust is deposited into the main hopper automatically.

In addition to offering greater maneuverability, these units sweep closer to walls and equipment without bumping or snagging. They pick up larger objects, too, and offer "Reach-Easy" controls for operating ease. Hydraulic dumping disposes of refuse automatically in one quick, simple operation. Extra large hopper capacity permits the machines to remain on the job longer by minimizing returns to the dumping point.

The newly-designed industrial power sweepers are made by the WAYNE MFG. CO., 1219 E. LEXINGTON ST., POMONA, CALIF. For additional data, write the manufacturer directly, or you may use the Post Card on the insert following Page 34. Circle No. 847.

Opportunity for Manufacturers' Representative

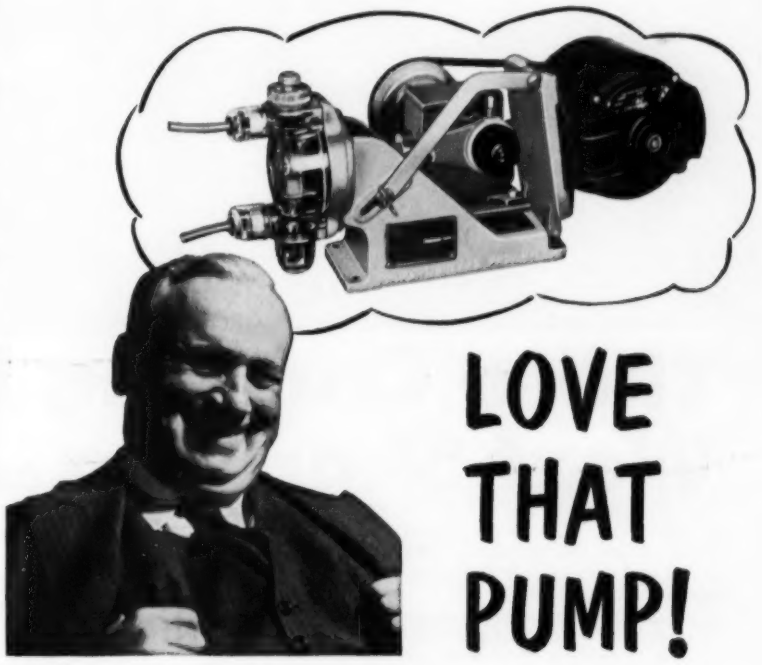
A nationally-known manufacturer is offering an excellent opportunity for a limited number of manufacturers' representatives now specializing in selling engineered municipal equipment. The product is being sold to those concerned with public safety and civilian defense with unit sales from $200 to $10,000 and more.

Those interested should send a resume including current and past principals, lines handled, extent of territory covered and experience and references, to BOX 390, THE AMERICAN CITY, 470 FOURTH AVE., NEW YORK 16, N. Y.

Milo Smith Retires

The Chicago Bridge & Iron Co., Chicago, Ill., announces the retirement of Milo E. Smith, who served the firm as advertising manager for some 28 years. Mr. Smith joined the company's advertising department in 1923 and was appointed manager in 1926, a post he held until July, 1954.

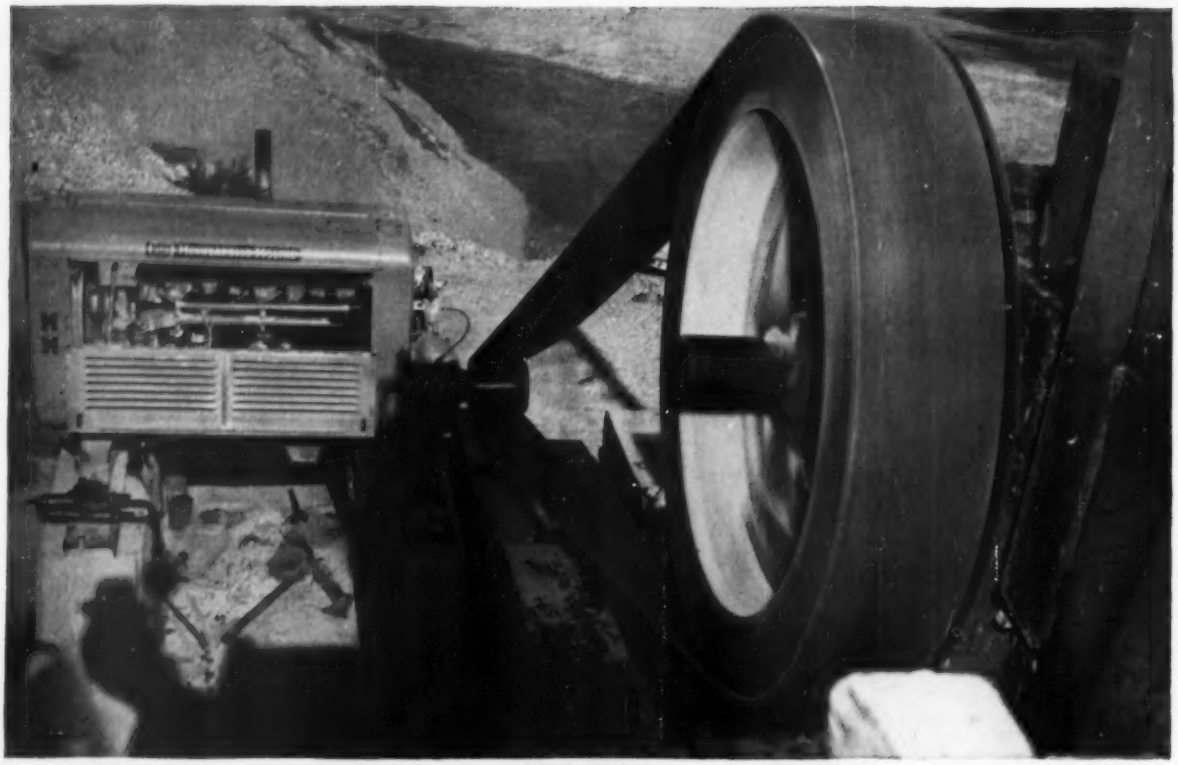
A life member of the Chicago Industrial Advertisers Association, Mr. Smith served as president of that organization in the early thirties. He has also served on committees, as a director, and as a vice-president of the National Industrial Advertisers Association.



There's a real feeling of relief to know Proportioneers "Little Red Pump" is in control of your water sterilization problems. Talk to any user of the Heavy Duty Midget Chlor-O-Feeder. He'll tell you about its low installation cost, its negligible maintenance cost, and its rugged dependability. He'll also talk about wide capacity range (up to 8.1 lbs. per hr. of chlorine using 15% Na O Cl) . . . and how easy it is to adjust feeding rate, or service this pump right on the job.

Want details on the pump you can "love" and trust? Send today for Bulletin 1201-1. Proportioneers, Inc., 358 Harris Avenue, Providence 1, Rhode Island.

PROPORTIONEERS
DIVISION OF B-I-F INDUSTRIES, INC.
BUILDERS IRON FOUNDRY • OMEGA MACHINE CO. • BUILDERS-PROVIDENCE, INC.
METERS FEEDERS CONTROLS

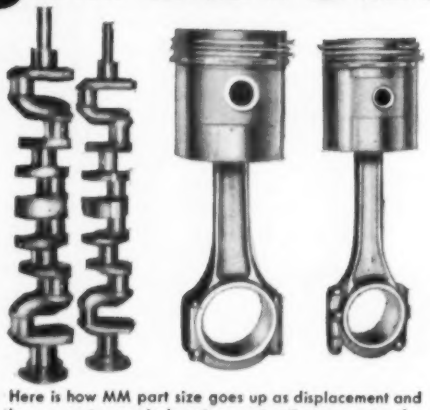


These Crushing Plants Went Shopping and Saved!

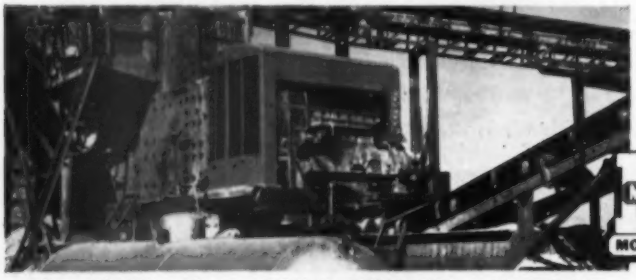
An MM 425-6A LP gas power unit best filled the requirements of this Illinois sand and gravel producer when he went looking for a heavy-duty engine to power roll and jaw crushers. His objective was to get

- **a factory equipped engine for lowest cost fuel**
- **low fuel consumption at maxium power and load**
- **minimum down time and maintenance**
- **convenience of installation and operation.**

The 425-6A more than filled the bill because MM engines are fully and separately designed for gasoline, LP gas, natural gas, diesel, or distillate—MM high turbulence combustion and ample displacement result in high torque at low rpm—long-run features like MM vacuum crankcase ventilation and improved oil filtering require less service—available equipment includes selection of power take-off drives, couplings, rotation and speeds—partial or full enclosures—radiator or cooling coil—choice of location for controls and instruments—electric starter and generator—water-cooled manifolds and heat exchanger jacketed base pan.



Here is how MM part size goes up as displacement and hp go up to supply heavier construction necessary for continuous heavy load operation. Crankshaft, connecting rod, and piston of MM's 108 hp 605-6A engine are shown side by side with those of the next larger MM engine, the 148 hp 800-6A. Size and weight where it counts does the job longer and without strain.



Minneapolis-Moline engines are available from 29 hp to 291 hp, can be outfitted for specialized applications meeting all original equipment and replacement requirements within size ranges. Specifications and engineering service available on request.

MINNEAPOLIS MOLINE
MM
MODERN MACHINERY

MINNEAPOLIS-MOLINE
INDUSTRIAL DIVISION
MINNEAPOLIS 1, MINNESOTA

Purchasing

Digs Deep Trenches in Crowded Areas

Minimum dimensions and clearances enable the Model 155 Trenchliner to operate in congested areas, digging from 5.8 inches to 12.17 lineal feet of trench per minute in a range of 30 speed selections. The unit is ideal for digging water, sewer and gas mains, and for a variety of municipal construction jobs. It will dig a trench up to 8 feet deep, and from 16 through 26 inches wide.

In addition to minimum over-all dimensions and reduced weight, the Trenchliner is designed with a low center of gravity and low ground bearing pressure.

Dimensions and weight of the new Trenchliner have been reduced without sacrificing digging capacity.

A hydraulically actuated boom hoist incorporates a positive down crowd, and a power shiftable and reversible belt conveyor discharges spoil to either side and at selective distances from the trench wall. The unit offers a choice of 16-, 20- or 24-inch buckets to which oversize adaptors may be fitted, increasing trench widths by 2 to 4 inches.

Additional specifications and descriptive literature on the Model 155 are available from the PARSONS CO., NEWTON, IA. Write directly, or you may use the Post Card on the insert following Page 34. Circle No. 846.

New Cataphote Offices

The CATAPHOTE CORP., now celebrating its 25th anniversary, has moved its offices to a new factory building at 2505 ALBION ST., TOLEDO, OHIO. The new building offers over 15,000 square feet of floor space. Here, Cataphote will manufacture plain and reflectorized traffic signs, street-name signs, highway reflector buttons, delineators, sign reflectorizing kits, and glass beads for reflective traffic marking.

Connelly
IRON SPONGE

THE DIRECT SOLUTION
TO YOUR SEWAGE GAS PROBLEM!

Connelly Iron Sponge stops corrosion . . . by removing contaminating Hydrogen Sulfide from raw sewage gas makes it safe for use in processing equipment. Connelly Iron Sponge can be depended upon to clean your gas—at high or low pressure—and improve purification and lower operating costs in the process.

Connelly's engineering department, backed by over 70 years of gas purification experience, welcomes the opportunity to solve your sewage gas problem. Write today.

CONNELLY Inc.

3154 S. California Avenue,
Chicago 8, Illinois
200 S. Second Street, Elizabeth, N. J.

SAVE up to 85% brush handling costs

This new M & M Brush Grinder rapidly converts
7 truckloads of brush into one truckload of chips.

Save on labor costs . . . truck operating costs. One man feeds brush or branches up to 6" in diameter into the Brush Grinder where they are chewed into small uniform wood chips and automatically blown into a truck or spread on the ground. The new M & M Brush Grinder is a portable unit with its own power plant. It hitches to jeep, car or truck for transportation right to the job. Safe easy operation with all moving parts fully enclosed. Nearly 100 years of experience in building fine grinding equipment is your assurance of long dependable service from an M & M Brush Grinder.

81

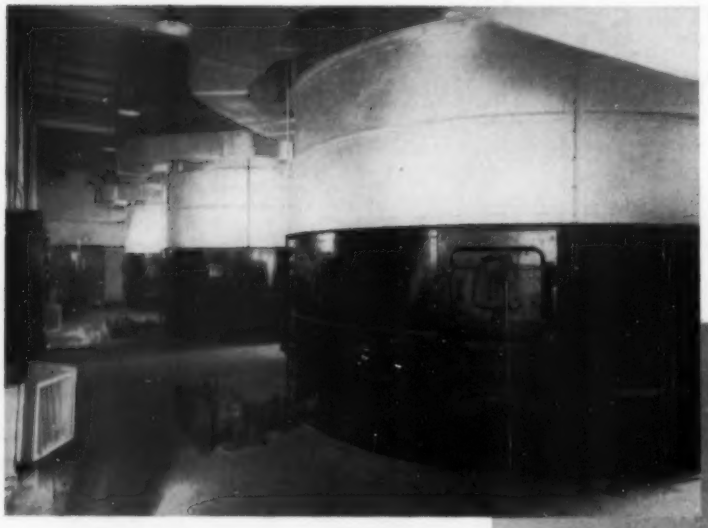
WRITE FOR ILLUSTRATED FOLDER TODAY

MITTS & MERRILL 1003 S. WATER ST., SAGINAW, MICHIGAN

Another Morse Boulger Project!

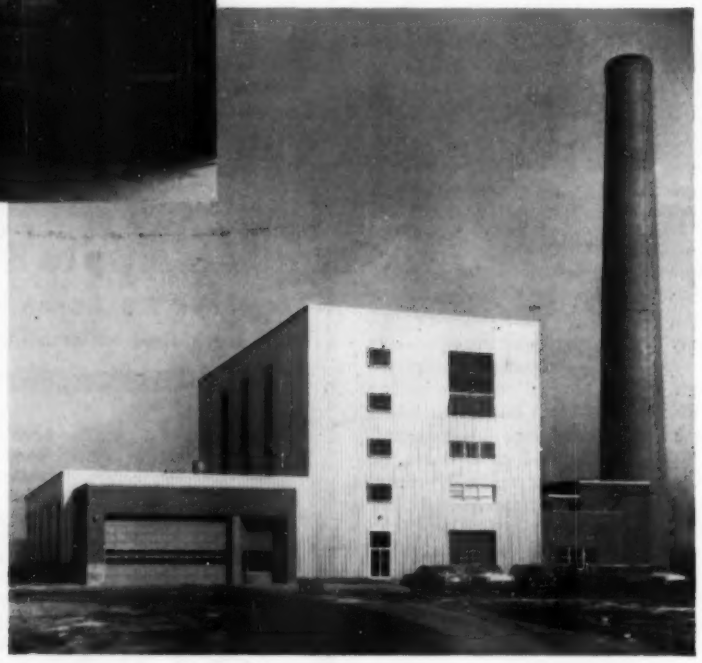
MODERN INCINERATION!

TWELVE MICHIGAN COMMUNITIES* GROUP TOGETHER FOR CENTRALIZED COLLECTION AND LARGE PLANT ECONOMY



Left:—Operating Floor with three Morse Boulger circular mechanically stoked incinerators, 16'—0" diameter.

Below:—Front View of plant



* Berkley
Birmingham
Clawson
Ferndale
Hazel Park
Huntington Woods
Oak Park
Pleasant Ridge
Royal Oak
Southfield Township
Royal Oak Township
Troy Township

SOUTHEASTERN OAKLAND COUNTY GARBAGE AND RUBBISH AUTHORITY
Wilfred A. Laking
Chairman

Greeley and Hansen
Engineers

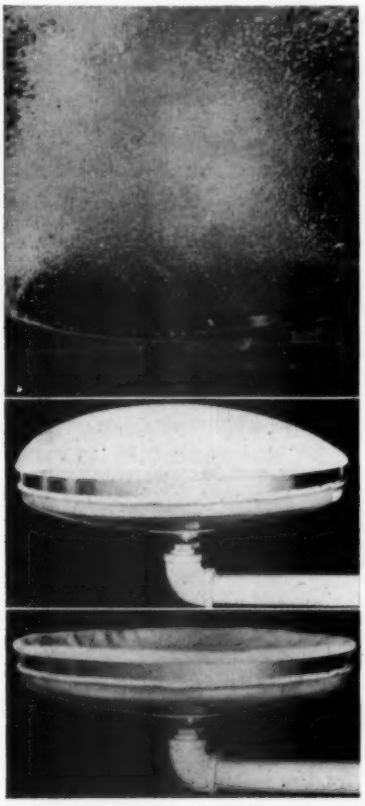
MORSE BOULGER DESTRUCTOR CO.

80-A FIFTH AVENUE • NEW YORK 11, N. Y.

Neptune Acquires Gas Meter Firm

Acquisition of the Superior Meter Co., of Brooklyn, N. Y., manufacturers of gas meters, by the Neptune Meter Co., 19 W. 50th St., New York City, is announced by D. E. Broggi, president of Neptune, and G. Powers, chief executive of Superior. The Brooklyn firm, which makes gas meters for residential, commercial and industrial use, distributes its products to gas companies in the area east of the Mississippi. It will operate as an independent, wholly-owned subsidiary of Neptune.

New Air Diffuser Easy to Clean



(Top) The diffuser in action. (Center) The fabric element is alternately inflated and (bottom) collapsed so that it is inverted downwardly into the diffuser pan for cleaning.

The new diffuser developed by Infilco Inc. not only makes it possible to maintain fine and uniform dispersion of air and gas in the sewage-treatment process, but also permits easy cleaning of the diffuser element. The Colaflex (R) is a flexible, collapsible diffuser which maintains practically constant permeability of air or gas into liquid to produce agitation, or to effect absorption or desorption.

A three-way valve, operated manually or automatically, cleans the fabric diffuser by cutting off the gas supply and venting the diffuser to the atmosphere. Upon venting, the fabric is collapsed by liquid pressure and inverted into the diffuser pan. Alternate inverting and reinflation dislodges the solid particles that may cling to the fabric.

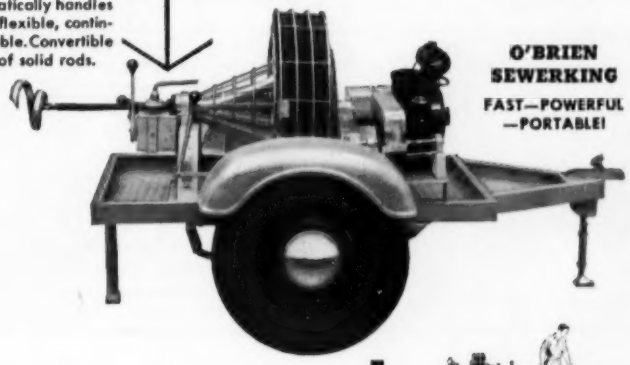
Several diffuser elements may be connected to a common header or gas duct of any pattern within the tank of liquid. Uniform gas dispersion is insured to each element.

For descriptive *Bulletin* 6530-B, write directly to INFILCO INC., 921 SOUTH CAMPBELL AVE., TUCSON, ARIZ., or you may use the Post Card on the insert following Page 34. Circle No. 832.

• OB - POWER TRANSMISSION

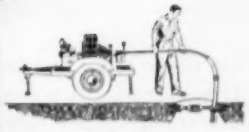
Automatically handles heavy flexible, continuous cable. Convertible to use of solid rods.

Open any blocked sewer faster with improved cable method cleaning!



O'BRIEN SEWERKING
FAST—POWERFUL —PORTABLE!

City after city is abandoning inefficient, time-wasting solid rodding—adopting instead, power-fed, *continuous* steel cable for sewer cleaning. This improved method has been made practical by the amazing OB Power Transmission found only in the O'Brien SEWERKING. This unit (*illus. above*) controls the feeding, rotating, retrieving and coiling of 1″ cable, which is much stronger than rods. It's the big reason for SEWERKING'S fast growing popularity—among cities who have lacked power cleaning equipment—and among those who are replacing with SEWERKING for better performance, less labor, and lower costs!



Easy on budgets — to buy and operate!

- Operated by 1 or 2 regular maintenance men.
- Full power—no manual labor.
- Continuous cable — no time wasted joining rods.
- Minimum street occupancy.
- Cleans sewers up to 500 feet.
- Complete line of cutting tools.

FREE DEMONSTRATION!

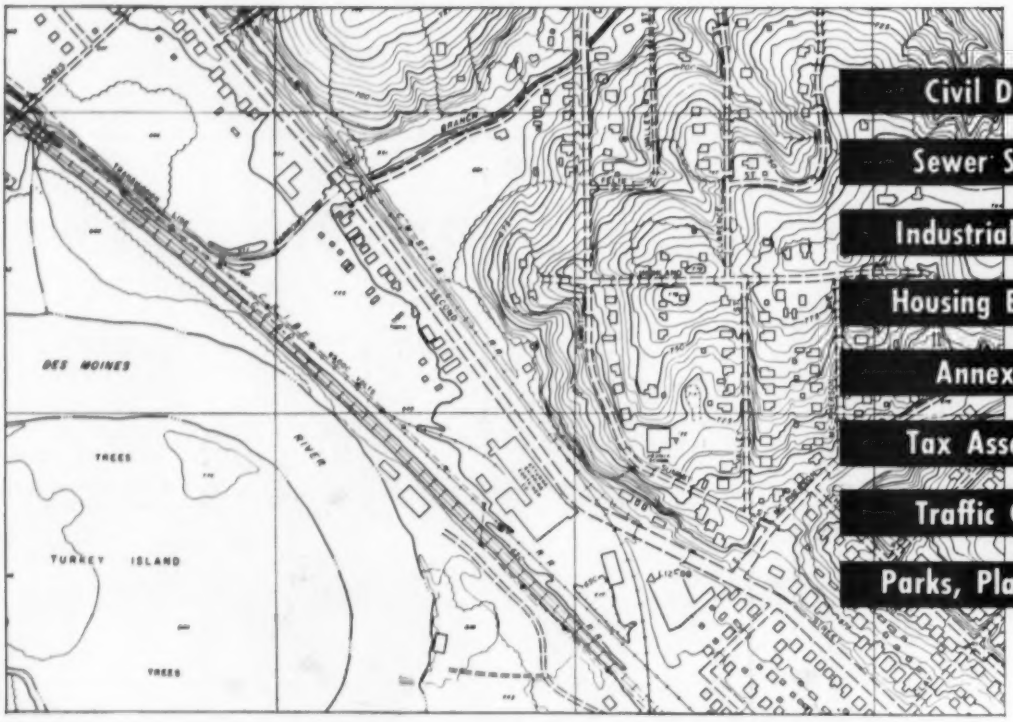
WRITE for facts and figures today! Demonstrations arranged without obligation.

O'Brien Sewerking®

Dept. AC-755

O'BRIEN MANUFACTURING COMPANY • 5662 Northwest Highway • Chicago 30

AERO MAPS
provide quick answers to city planning problems



Civil Defense
Sewer Systems
Industrial Growth
Housing Expansion
Annexation
Tax Assessment
Traffic Control
Parks, Playgrounds

AERO photo maps, delivered for just a few cents an acre, will speed your city planning. From these photos, skilled AERO cartographers prepare topographic maps of engineering accuracy—provide you with complete map data months ahead of ground survey methods.

AERO has the planes, equipment and experienced manpower to carry your mapping through from start to finish, without tieing up your own busy engineering staff. Let us show you how AERO, pioneer and leader in aerial surveys, can save you time and money.

The photograph and map section shown above are part of a recent AERO survey of Ottumwa, Iowa. Other cities now benefiting from AERO mapping are Raleigh, Cleveland, Philadelphia, Durham and many others.

AERO SERVICE CORPORATION
Philadelphia 20, Pa.
OLDEST FLYING CORPORATION IN THE WORLD
Offices in Tulsa, Duluth, Salt Lake City
In Canada: Canadian Aero Service, Ltd., Ottawa

Photo Street Light Control

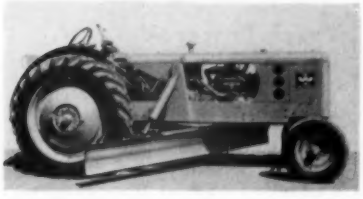
New automatic control is said to eliminate unnecessary wiring and tubes.

A new photoelectric control to switch individual street lights on and off, is said to be as simple to install as the luminaire itself. It operates in the range of 105 to 130 volts, and switches any incandescent lamp up to 1,000 watts or one 400-watt mercury-vapor lamp.

The new control is fully described in *Catalog* 8110. For your copy, write the AMERICAN ELECTRIC MFG. CORP., 34 N. ORLEANS, MEMPHIS, TENN., or you may use the Post Card on the insert following Page 34. Circle No. 843.

Improved Unit Simplifies Street Maintenance

Simplify your street maintenance chores with a Huber-Warco maintainer, recently improved to include a torque



converter and power sliding moldboard as standard equipment. The unit replaces the well-known Huber maintainer, and retains many of the advantages that made that machine popular with municipal street departments. It weighs 7,200 pounds with calcium chloride solution in the rear tires, and measures 9 feet, 6 inches at the wheelbase.

The new hydraulic torque converter automatically balances the torque of the engine to meet the load demand of the maintainer, at the same time, protecting the unit from shock-loads. The power sliding moldboard is said to increase working capacity. As in the old model, the new maintainer features blade-pushing design of the moldboard, so that power is transmitted directly from the driving wheel to the moldboard.

With the new maintainer you can have either gasoline or diesel power. A Continental F-162 gasoline engine features 45½-hp, and a Continental GD-157 diesel engine, 40-hp. Five speeds range from 1.7 to 21 mph.

Hydraulically-controlled attachments enable the unit to work as a bulldozer, lift-loader, side dozer, berm leveler, broom, patch roller, mower or snow plow.

For more information, write directly to the HUBER-WARCO CO., MARION, OHIO, or you may use the Post Card on the insert following Page 34. Circle No. 842.

WARNING

FIRE FLOOD TORNADO strike without warning!

The Atom Bomb is not the only, nor the greatest danger to American Communities. This year natural disasters have hit all parts of our country. Many of these areas felt immune to danger, but with nature there is no immunity — no four hour alert — she strikes now! Fast and furious!

Even a few seconds warning can save countless lives. Modern sirens can alert an entire countryside to danger or rally Civilian Defense or other rescue teams to aid victims.

FEDERAL STL-10

FEDERAL THUNDERBOLT

All communities need disaster warning signals. Prepare now! Supplement your existing fire signal with modern sirens like the FEDERAL STL-10 and the FEDERAL Thunderbolt. Blanket your entire community with ample sound to prevent and reduce loss of life. The modern FEDERAL Sirens are designed for air raid, disaster or fire alarm. A vast majority of American Communities are now protected by FEDERAL Warning Signals. If you do not have a complete, modern system — call on FEDERAL for assistance and recommendations. Write today — we can help you!

FEDERAL SIGN and SIGNAL Corporation

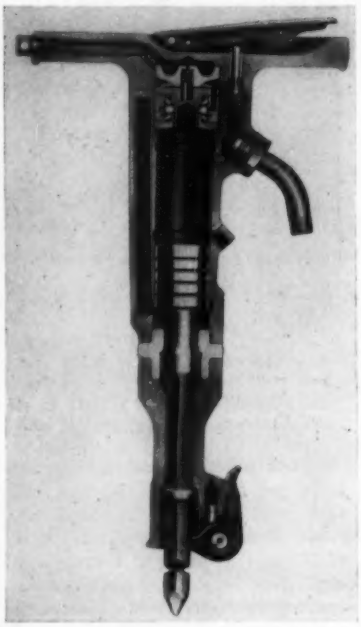
formerly; Federal Enterprises, Inc.

8756 S. State St., Chicago 19, Ill.

Paving Breaker Doubles As Spike Driver

Something new has been added to the old, familiar general purpose paving breaker in its ability to now perform as a spike driver. The new medium-weight Model DB-60, manufactured by the Davey Compressor Co., is not only adaptable to all types of demolition and trimming work, but by replacing the fronthead with an SP-75 spike driver attachment, it can perform another function very efficiently.

The tool is distinctive because of its chrome plated cylinder bore which is designed to reduce wear and lengthen the life of the tool. It also has a reversible piston hammer, extra large alloy steel fronthead bolts and springs, and Davey Rocket Valve with double trip ports for increased work output. The breaker weighs 63 pounds, and measures 26⅜ inches long and 14¾ inches wide.



Cross-sectional view of the Davey Model DB-60 Paving Breaker.

The apparatus is described in *Bulletin E-525* which may be obtained directly from the DAVEY COMPRESSOR CO., KENT, OHIO, or you may use the Post Card on the insert following Page 34. Circle No. 828.

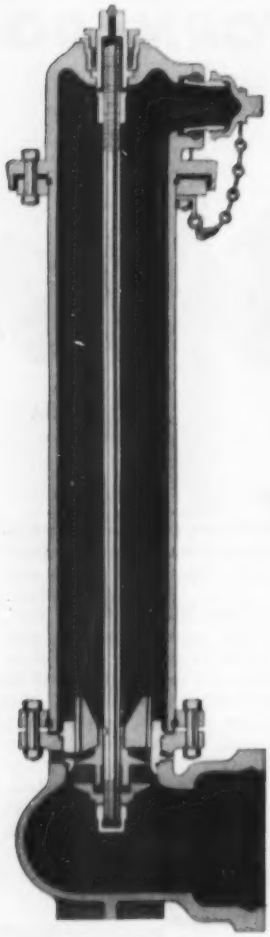
Truck-Powered Utility Pump

A rotary utility pump which taps the engine power of trucks is the first of a line of truck-powered tools to be offered by H. S. Watson Co. The line is designed to utilize the rear power source which the company introduced earlier this year.

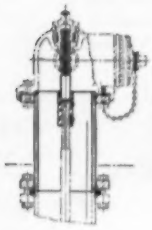
Tapping the engine power of light trucks and pick-ups, the pump kit may be permanently installed beneath the truck body. When mounted on the standard Watson rear power source, it can be installed or detached in a few minutes.

Useful for handling spray chemicals, liquid fertilizers, petroleum products, and water for fire-fighting, the pump develops pressures up to 350 pounds. It

COSTS LESS TO INSTALL COSTS LITTLE TO MAINTAIN



A community can rest easy when it is protected by R. D. Wood Swivel-Joint Hydrants. Trouble can be a long time coming, but when it comes these great hydrants are ready. Installation and maintenance costs are low. They work instantly, reliably. Water-carrying areas are generously sized for full flow and maximum pressure. Every point of friction is protected by at least one bronze surface. Accurately formed threads and fitted parts make them interchangeable with other hydrants of the same size. Compression-type valve stops leakage when hydrant is broken in traffic accident.



Extension piece can be inserted between hydrant head and barrel, or between barrel and elbow, without shutting off water supply.

Breakable flange and stem coupling can be furnished at extra cost. Both are constructed so that a heavy blow will snap the ring and coupling, thus saving more costly damage to the hydrant itself. Both can be replaced quickly and inexpensively with spares. No digging necessary.

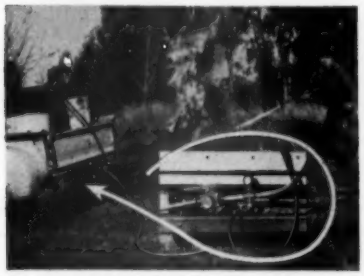
R.D.Wood Swivel Joint Hydrants

Public Ledger Building, Philadelphia 5, Pa.

Manufacturers of "Sand-Spun" Pipe (centrifugally cast in sand molds) and R.D. Wood Gate Valves

Send for this 80-page catalog. It contains full information about the R. D. Wood line of Cast Iron Pipe, Fire Hydrants, Gate Valves, and Hydraulic Machinery.

features corrosion-resistant construction, permanently lubricated ball bearings, nylon rollers, and a safety shear-pin coupling. Mounting on tractors having



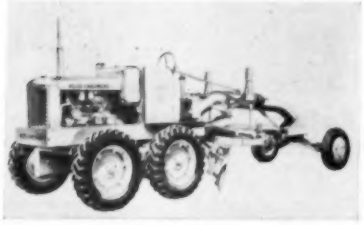
The Watson utility pump using rear power source puts out a brush fire.

a 1⅜-inch, 6-spline PTO is also possible.

Information about the utility pump or rear power source is available from the H. S. WATSON CO., 1316 67TH ST., EMERYVILLE, CALIF. Write directly, or use the Post Card located for your convenience on the insert following Page 34. Circle No. 834.

Motor Grader in Diesel-Powered Model

The Allis-Chalmers Model D motor grader is now available in a model powered by a new 6-cylinder, valve-in-head diesel engine rated at 50 bhp at 1,625 rpm. The engine has a 3 7/16-inch bore and 4 1/8-inch stroke, and 230-



The new Model D diesel motor grader with a 6-cylinder diesel engine.

cubic-inch piston displacement. Electric starting is by a 12-volt system.

The new engine incorporates replaceable wet-type cylinder liners; by-pass cooling system with high-capacity water pump; pressure lubrication; aluminum alloy pistons; simple, easily serviced fuel-injection system; and four filters to assure clean fuel.

The design of the Model D, which is also available with a gasoline engine, features the Roll-Away moldboard, single-member tubular frame, tandem drive, compact and rugged gearing, heavy drawbar, and one-piece circle. The diesel model weighs 9,350 pounds, with 2,760 pounds on the front wheels, and 6,590 pounds on the rear wheels. Blade pressure is 4,900 pounds. Speeds range from 2.6 mph in first gear to 25.2 mph in fourth.

Special equipment includes 135° power circle turn, leaning wheel with 25° range each way, power-shift moldboard, mid-ship-mounted scarifier, 12-foot moldboard, 10-foot moldboard with end bits, 2-foot extensions, cab, snowplow, windrow eliminator, shoulder maintainer, and rear-end loader.

For detailed information write directly to ALLIS-CHALMERS MANUFACTURING CO., TRACTOR DIVISION, MILWAUKEE 1, WIS., or you may use the Post Card on the insert following Page 34. Circle No. 833.

WHIP

EXPANSION
CONTRACTION
SETTLEMENT

WITH

McWANE-PACIFIC SUPER DELAVAUD

MECHANICAL JOINT CAST IRON PIPE

Practical water or gas distribution men well know that pipe line settlement, expansion and contraction from season to season sometimes cause joint leaks in bell-and-spigot pipe lines.

This kind of trouble may be prevented in future pipe line construction by the use of McWane-Pacific Boltite mechanical joint cast iron pipe. Boltite mechanical joints stay flexible; permit settlement, expansion or contraction without leakage. The special bolts, glands, and sealed-in rubber compound gasket last as long as the pipe.

For details, wire or write McWANE CAST IRON PIPE COMPANY, Birmingham, Alabama, or PACIFIC STATES CAST IRON PIPE COMPANY, Provo, Utah. (Sales offices in principal cities.)

McWANE PACIFIC PIPE *Lasts for Centuries*

Wet refuse, but no leakage, no flies!

THE BROOKS **LOAD LUGGER**®

picks up hauls dumps puts down

WHAT IT IS

The BROOKS LOAD LUGGER is a flat-bed truck body with a pair of hydraulic-powered hoisting arms, which is mounted on any truck chassis of suitable capacity. Standard models lift pay loads of up to 18,000 pounds at a time. Some special-purpose models lift much heavier pay loads.

LOAD LUGGER CONTAINERS are patented, tilt-dumping containers with deep, leak-proof bottoms. Capacities range from 1½ to 14 cubic yards for standard models. Some special-purpose models are much larger. A variety of open and closed containers handle solid materials, powders, sludge, liquids, and gases. Special pallets handle free-standing and unit-packaged materials.

Controlled by the driver from his cab, the truck-mounted Brooks Load Lugger lifts a Load Lugger Container onto its steel deck, carries it well forward for correct load distribution, cradles it between steel sidewalls for travel safety, hauls it away, dumps or spreads its contents, then returns the container and puts it down.

HOW IT IS USED

The LOAD LUGGER SYSTEM of materials handling calls for a number of Load Lugger Containers to be placed at points of need. These containers collect material as it accumulates, which reduces handling and eliminates loading crews. Then, loaded containers are picked up, hauled away, dumped, and returned on a regular schedule by a truck-mounted Brooks Load Lugger, which replaces many conventional trucks and eliminates loading time formerly required.

WHO USES IT

Industrial operations all over the country (quarries, foundries, steel mills, paper mills, refineries, chemical plants, brick plants, metal fabricators, etc.) use this versatile equipment to handle raw materials, finished products, and waste materials. Contract haulers of wet and dry refuse prefer Load Lugger equipment, as do scrap metal dealers, construction contractors, cemetery operators, and sugar cane growers. Government approval is evidenced by the many municipal, state, and federal installations. New uses and new users, such as cable reel handling by power and telephone companies, are constantly coming into the picture.

WHY THEY LIKE IT

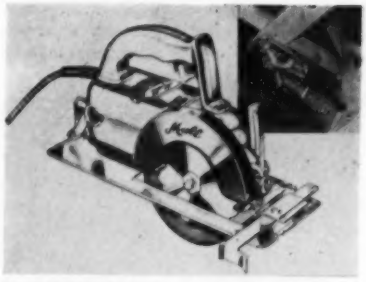
The Brooks Load Lugger has no cumbersome superstructure or extra operating gadgets because of its patented simplicity, clean design, and sturdy construction. This results in a lower first cost, lower maintenance costs, the ability to carry more pay load on a given truck chassis, and a clear deck for multipurpose use. Its double-acting hydraulic cylinders, four-point container suspension, secure container cradling, and fully controlled tilt dumping are important contributions toward greater operational safety.

Load Lugger Containers are job-designed and job-proved. They are low and easy to load to full rated capacity. They dump clean because they are tilt-dumping, and they have no bottom openings to allow messy or insanitary leakage. Appropriate models are dust-proof, rat-proof, fly-proof, and almost odor-proof.

BROOKS EQUIPMENT & MFG. CO. 2032 DAVENPORT ROAD · KNOXVILLE, TENNESSEE

Purchasing

Portable Hand Saw



New lightweight electric hand saw, Model 54, is ideal for overhead cutting.

Municipal construction workers can use this new electric hand saw, Model 54, for inside trim, plywood, drywall construction and many other difficult sawing jobs. The portable unit features a narrow design that permits straight cutting in tight places. A handle is centered directly over the motor, providing better balance and easier handling in awkward spots.

Capable of cutting off a 2 x 4 at 90°, this saw's minimum depth of cut at that angle is 0, and its maximum depth is 1.875 inches. Maximum depth of cut at 45° is 1¾ inches. A universal AC or DC motor turns at 18,000 rpm. The saw weighs 8¾ pounds without the cord, and comes furnished with a rip guide, a 10-foot cord with plug and ground wire, a blade 5¼ inches in diameter, and instructions. In addition, the unit will operate a blade-planer, a metal cutting blade, and a friction cutting blade.

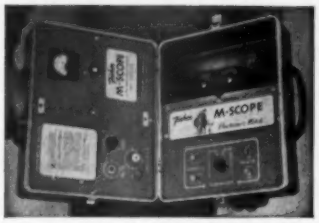
The MALL TOOL CO., 7725 S. CHICAGO AVE., CHICAGO 19, ILL., will furnish full information on the new hand saw. Write directly, or you may use the Post Card on the insert following Page 34. Circle No. 844.

Rotary Air Compressors Feature Slower Speeds

The slower operating speeds of these 2-stage, oil-cooled, rotary air compressors offer your community increased economies in fuel and engine wear. The units are available in 125 and 600 cfm sizes. They boast fewer moving parts, cooler air temperatures, and no vibration.

The new compressors are designed so that 100 pounds minimum pressure is constantly maintained over the entire operating range. All speed modulation is smooth and stepless, and control is instantaneous. Further, there are no metering orifices, complex linkage or toggles to complicate control. Starting

FISHER
M-SCOPE
"ELECTRONIC WITCH"
PIPE-CABLE-FINDER
—LEAK-DETECTOR—



USED AS A PIPE FINDER

USED AS A LEAK DETECTOR

- Fiberglas Cases
- 50% Lower Batt. Cons.
- Unsurpassed Performance
- Built-in "A" and "B" Battery Checker in Transmitter and Receiver $12.50 Extra.

PRICE ONLY $162.50

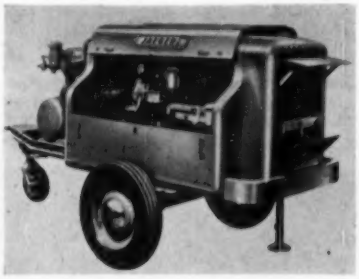
- IMMEDIATE SHIPMENT
- WRITE TODAY FOR THE COMPLETE "ELECTRONIC WITCH" STORY.

FISHER RESEARCH LABORATORY, INC.
PALO ALTO / CALIF.

Purchasing

and stopping require only the half-turn of a regulator crank.

A copper tube finned multi-pass oil cooler insures cool operation in ambient temperatures exceeding 100°. In cold-weather starting, oil is automatically by-



This Model "125" Roto compressor is equipped with tool boxes large enough to carry a complete set of air tools.

passed to the compressor cylinders to protect against dry starts.

THE JAEGER MACHINE CO., 505 DUBLIN AVE., COLUMBUS 16, OHIO, offers a full description of both air compressors in *Catalog JCR5*. For your copy, write the manufacturer directly, or you may use the Post Card on the insert following Page 34. Circle No. 845.

Traverse City
Iron Works
Traverse City, Michigan

Manufacturers

Fire Hydrants
and Valves

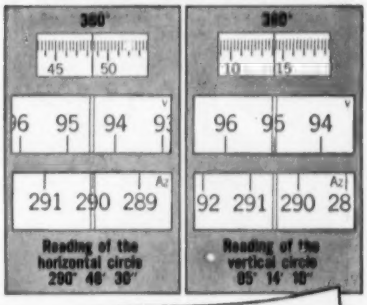
A.W.W.A. Specifications for Municipal and Industrial Work Factory Mutual and Underwriters Approved for Automatic Sprinkler Installations.

- Mechanical Joint Fittings
- Bell and Spigot Fittings
- Flanged Fittings
- Special Fittings
- Fabricated Pipe for Pumping Station and Sewage Treatment Plants

AT YOUR REQUEST
IT'S HERE...

The NEW 20" Reading
WILD HEERBRUGG T-1
OPTICAL
Repeating TRANSIT

In answer to many requests, available now as an alternative to the Standard Model (reading direct to 1', interpolation to 6"). The New Model WILD T-1 Optical Repeating Transit gives direct reading to 20" on both circles, easy interpolation to 10" (as shown below).



The WILD T-1, with years of proven service under all field conditions, is the most widely used modern transit because it offers you: - full behind-instrument operation, a built-in optical plummet for fast set-up, an optical micrometer reading system which eliminates possibility of error. It sets on zero and repeats angles. Illumination is provided by daylight mirror or battery attachment for night, tunnel or mine work. Made by the world's largest surveying instrument manufacturers and backed by full factory service here.

T-1 TRANSIT $740
Reading direct to 20 seconds, interpolation to 10 seconds.

T-1 TRANSIT (Standard Model) $722
Reading direct to 1 minute, interpolation to 6 seconds.

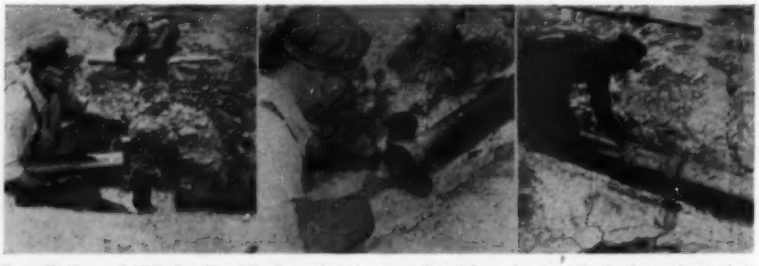
(All Model Tripods Extra)
PRICES F.O.B. PORT WASHINGTON, N. Y.

For details phone or write for Booklet AM7

WILD HEERBRUGG INSTRUMENTS INC.
MAIN & COVERT STS., PORT WASHINGTON, N. Y.
POrt Washington 7-4843

New Clay Pipe Prevents Line Failures

One answer to expensive sanitary line failures is the "Wedge-Lock" clay pipe which is now going into full production at the Robinson Clay Product Co. Developed by this company, a pioneer in the manufacture of clay products for a century, "Wedge-Lock" features an integral double-ball mechanical joint of tough, corrosion-resistant plastisol. The factory-made joint is cast inside the bell and on the spigot of low-absorption pipe.



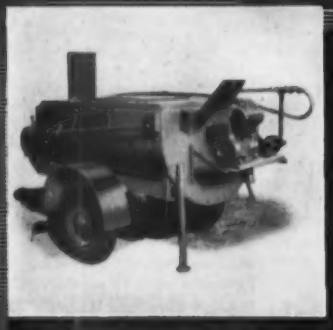
Installation of "Wedge-Lock" clay pipe is completed in minutes. Both the spigot (left) and bell castings (center) are coated with the "Wedge-Lock" adhesive and then shoved "home" (right) by hand or with a metal pinch bar.

The new development is root-proof, infiltration-proof, vitrified clay that is resistant to chemicals and acids usually found in sewage and industrial wastes. It is available in both standard and extra strength in 4-, 6-, and 8-inch full diameters; 10- and 12-inch diameters will be available shortly. Matching fittings and a special union for joint cut ends are also offered by the company.

For detailed information write directly to ROBINSON CLAY PRODUCT CO., 65 W. STATE ST., AKRON 9, OHIO, or you may use the Post Card on the insert following Page 34. Circle No. 830.

Patch ROADS THE LOW COST WAY

Temperature Easily Controlled
•
Easy to Transport
•
Saves Money on Patchwork



STANDARD STEEL TAR-KETTLES

PATCH AND MOVE ON IN MINUTES AND SECONDS

With this Standard Steel Model "S" Kettle, "cold spots" or "burnt materials" are eliminated. You get uniformity of heat throughout the entire mass of material. Steady temperature at the correct level is maintained all day long. Easily transported — equipped with special safety features — it's a fast worker. With a motor spray attachment, it is even more efficient for road maintenance. Standard Steel also offers a complete line of crack filling pots, shoulder rollers and other road maintenance equipment.

WRITE FOR CATALOG AND PRICES

OTHER PRODUCTS OF STANDARD STEEL

Asphalt Pressure Distributors, Maintenance Distributors, Patch Rollers, Supply Tanks, Tool Heaters, Asphalt Tools, Street Flushers, Construction Brooms.

Built to the Highest Standard

Standard Steel Works NORTH KANSAS CITY, MO

Something for the Kids

To the rough ridin' element with their Davey Crockett hats and brace of Hoppy six shooters, any city that does not provide the kind of pinto that a man—or a girl—can really ride is not worth its salt. For amusing the youngsters who gather in parks, playgrounds, and other municipal centers, Allan Herschell Co., Inc., is introducing a Hobby Horse which allows the children to make their own fun by rocking themselves.

He's a wild steed all right, but this little girl has no trouble managing him.

The horses, which come in different

sizes, are made of heavy cast aluminum, mounted on strong steel bases that cannot tip over. Each one is a genuine Merry - Go - Round horse, hand painted by a skilled artisan.

For additional information, write directly to ALLAN HERSCHELL CO., INC., NORTH TONAWANDA, N. Y., or you may use the Post Card on the insert following Page 34. Circle No. 827.

Link Radio Opens New Plant

The Link Radio Corp. recently acquired this modern plant in New Hyde Park, N. Y., with all facilities located on one floor. The company produces two-way radio equipment for municipal police and fire departments.

Tight Joint for Clay Sewer Pipe

Your city can get completely rootproof, watertight, clay sewer pipelines with new molding compounds introduced by THE B. F. GOODRICH CO., INDUSTRIAL PRODUCTS DIVISION, AKRON, OHIO.

Rings of Koroseal are molded permanently at the ends of each pipe section.

Koroseal molding compounds permanently seal the joints between lengths of pipe. They are available in liquid plastic form to clay sewer pipe manufacturers who process the material into tough, flexible sealing rings.

According to Clyde O. DeLong, president of the Industrial Products Division, the finished Koroseal joint is immune to the chemicals, alkalies and acids encountered in underground service. It provides an effective seal in seconds, eliminating the cost and labor involved in caulking joints by conventional methods.

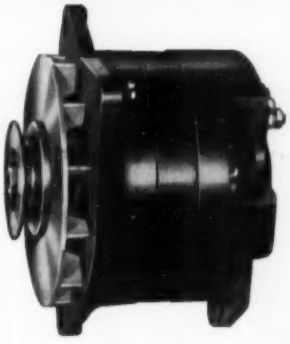
Contractors receive the new pipe with rings of Koroseal material molded permanently at the ends of each pipe section. At the shaft end of the pipe, a Koroseal ring is molded to the outside surface. At the bell end of the pipe, a Koroseal ring is molded to the inside surface of the bell. When the two ends are pushed together, the rings squeeze tightly against each other to form a mechanical, compression seal.

Full details on Koroseal molding compounds are available directly from the manufacturer, or you may use the Post Card on the insert following Page 34. Circle No. 848.

Now EVERY city in America can afford

Leece-Neville

ALTERNATORS on all vehicles



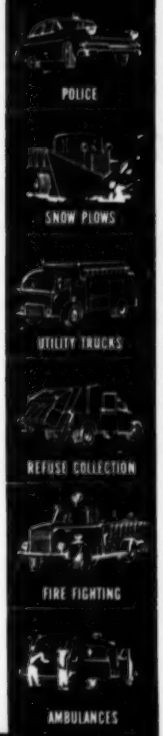
SENSATIONAL LOW PRICE ON NEW L-N ALTERNATOR SYSTEM

The new Leece-Neville Alternator brings to light trucks, passenger cars, and other vehicles all the famous advantages that larger L-N Alternators have proved by performance for over nine years: charging current with engine idling, high output, low maintenance cost. Yet the new L-N Alternator System actually *costs less* than "extra" output d. c. generators.

L-N ALTERNATORS FOR EVERY APPLICATION

There's a right L-N Alternator for *every* vehicle. Capacities range from 60 amps for 6-volt systems to 180 amps for 12 volt systems. L-N Alternators will keep the equipment on the job and out of the repair shop.

For all the facts, write The Leece-Neville Company, Cleveland 14, Ohio. *Distributors in principal cities . . . service stations everywhere.*



ON YOUR NEW UNITS SPECIFY LEECE-NEVILLE EQUIPMENT, FACTORY-INSTALLED

YOU CAN RELY ON Leece-Neville

ALTERNATOR SYSTEMS • GENERATORS
STARTING MOTORS • REGULATORS • SWITCHES
FRACTIONAL HP MOTORS

It's Terrific . . .
the NEW
TOLEDO
SPIN TORQUE
CHUCK

The Perfected
Chuck-Locks Tight
with a
Spin of the handwheel!

● No more rocking, socking or hammering with the new "TOLEDO" SPIN TORQUE CHUCK. Now you can chuck ⅛" to 2" pipe, or rod as small as ¼", with a spin of the handwheel. Jaws are flush with chuck—exclusive rocking wedge action of jaws prevents slippage — husky "big hand" grip on wheel is easier to tighten — no end thrust slippage. See them at your pipe tool suppliers, now. Next time try "TOLEDO".

THE TOLEDO PIPE
THREADING MACHINE COMPANY
1445 SUMMIT ST., TOLEDO 4, OHIO

BUILDERS OF THE WORLD'S FINEST PIPE TOOLS
TOLEDO
PIPE THREADERS - PIPE WRENCHES - PIPE MACHINES

Purchasing News

Thermoplastic Traffic Lines in Place of Paint

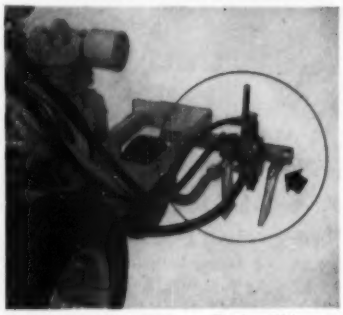
(Below) Six-inch crosswalks, centerlines, and island boundaries of Crystalex around Union Square, N. Y., three months after application in 0-17 degree weather.

(Above) Crosswalk at 57 St. and First Ave., five months after application.

For at least six months, New York City has been searching for a traffic-line material that will take the place of paint. The search is now in the stage of trial installations of various thermoplastic materials. These are hot-melt plastics poured hot. They are in the nature of a ribbon of tooth paste and cool quickly.

One of these hot plastics, illustrated here, is Crystalex, pioneered in England as long ago as 1940. It is said to outlast paint four times. In New York

NEW KELLY-CRESWELL
SPRAY GUN MAKES
ROAD STRIPING EASIER



Kelly-Creswell Company, Xenia, Ohio, recently announced the introduction of a new automatic striping gun (shown above) for use on highway and industrial road-marking equipment.
This new gun is diaphragm-operated, which eliminates the air cylinder and upper packing gland normally found in most spray guns. As a result, it eliminates the greatest cause of air loss in automatic spray guns. Actually, the new gun requires about 25% less compressed air to operate at peak efficiency.
The gun is being installed on all of the various types of striping equipment made by Kelly-Creswell. It also is available as a replacement part.
Kelly-Creswell is a pioneer manufacturer of a complete line of road-marking equipment —truck-mounted, power driven and hand operated.

For additional information write
Kelly-Creswell Company
Xenia, Ohio

BIRD DAMAGE
IS COSTLY

ECONOMICAL SAFE

Bur-Co Bird Repellent does not harm birds. They instinctively dislike Bur-Co. No chemical reaction on building material. Does not harm humans internally or externally. Each application properly applied eliminates birds for at least one year. Write for prices and additional information.

POSITIVE HUMANE

BURR CHEMICAL CO.
3329 Auburn Rockford, Ill.

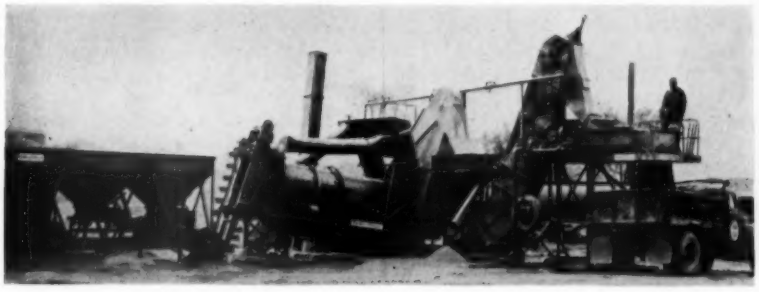
Purchasing News

City, crosswalk lines are painted up to four times a year, depending on the volume of traffic.

The New York City Department of Traffic expects these plastics to give excellent service and save the city a considerable amount of work and expense.

For information on this particular compound, write CRYSTALEX, INC., BERLIN, N. J., or you may use the Post Card on the insert following Page 34. Circle No. 852.

New Asphalt Plant in 20-50 TPH Range



Barber-Greene's new Model 840-B asphalt plant series provides from 20 to 50 tons of asphalt per hour. For stabilized mixes alone, only the pugmill section of the mixer is necessary. Where portability is desired, the complete mixer is available with a rubber-tire mounting and adjustable jacklegs. For emulsions, or other cold-mix bituminous materials, the mixer may easily be fed from a portable hopper-feeder-elevator unit.

(Continued on page 218)

NEW CATALOG!

MUNICIPAL SUPPLIES

No. 152

ESTABLISHED 1908—47 YEARS OF SERVICE

W S DARLEY & CO

CHICAGO 12 ILLINOIS

WRITE TODAY
For
100-PAGE
MUNICIPAL CATALOG

W. S. DARLEY & CO.
CHICAGO 12

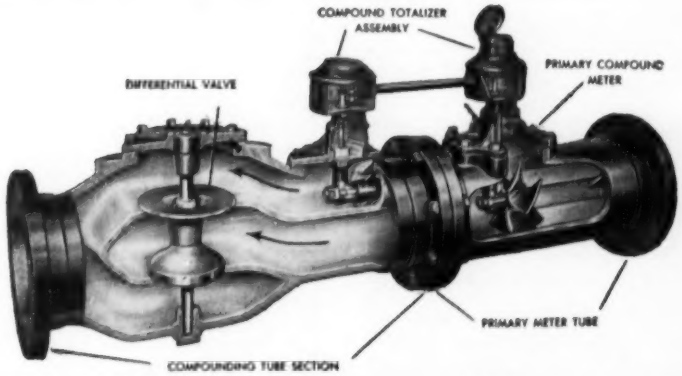
Sewage Treatment Plant Operator Wanted

New 20-MGD sewage plant in Midwest needs experienced operator for 6 to 9 months to start plant in operation. Job may become permanent.

Write to Box 392
THE AMERICAN CITY
470 Fourth Ave.
New York 16, N. Y.

SPARLING

WATER CONTROL EQUIPMENT



COMPOUNDS for Flow-Ranges as Wide as 1 to 125

The standard 6-inch Sparling Meter accurately registers flows from 90 gpm to over 900 gpm. To read flows as low as 15 gpm in a 6-inch main, install the SPARLING Compound Meter shown above. Sizes 6-inch to 36-inch.

Bulletin 314 and quotations are yours for the asking.

SPARLING METER COMPANY
INCORPORATED

ATLANTA 3 ..... 66 Luckie Street NW
BOSTON 8 ..... 6 Beacon Street
CHICAGO 8 ..... 1500 South Western Ave.
CINCINNATI 2 ..... 626 Broadway
DALLAS 1 ..... 726 Reserve Loan Life Bldg.
KANSAS CITY 6, MO. ..... 6 E. Eleventh St.
Box 3277 ..... LOS ANGELES 54
101 Park Avenue ..... NEW YORK 17
3538 Forbes St. ..... PITTSBURGH 13
85 Industrial St. ..... SAN FRANCISCO 24
1932 First Avenue ..... SEATTLE 1
207 Queens Quay West ..... TORONTO, CAN.

Versatile

"GUNITE"

FOR REPAIRS TO SEWAGE DISPOSAL PLANT

Before

After

The existing concrete on this sewage disposal plant in western New York had deteriorated to an alarming extent and necessitated the rebuilding of practically the entire plant above ground. The pictures above are evidence that "Gunite" repair is not only practical but that it resulted in complete restoration of the plant.

On job after job, "Gunite" proves its worth. Our engineers will inspect your facilities and make recommendations for repairs without obligation on your part.

Engineers: For detailed information on "Gunite" the versatile repair material for all types of concrete structures, send for our 48 page bulletin. Pease use the coupon. Mail to

PRESSURE CONCRETE CO.

Dept. AC

"GUNITE" Contractors and Engineers

315 S. Court St., Florence, Alabama

33 N. LaSalle St., Chicago, Ill.

193 Emmet St., Newark, New Jersey

Pressure Concrete Co.
315 S. Court St.
Florence, Ala.

Please send me the 48 page bulletin.

Name .....

Company .....

Address .....

City ..... Zone .... State .....

MAIL TODAY AC

Purchasing

(Continued from page 217)

When producing hot mixes, the same mixer-hopper combination is used and a B-G portable dryer is added to dry the aggregate and bring it up to proper mixing temperature. Either of two dryers may be used. One offers 10 to 25 tph output; the other 30 to 45 tph. Both are equipped with built-in dust collector cones and built-in bucket elevators.

When two or three-bin screening and separation of the aggregate sizes after drying is required, a B-G portable gradation control unit is interposed between the dryer and the mixer. In such an installation, the single-aggregate hopper and feeder are removed. Complete cold aggregate feed systems are obtainable for either single or multiple aggregate setups.

Complete information and specifications on the 840-B plant series may be obtained from the BARBER-GREENE CO., AURORA, ILL. Write directly, or you may use the Post Card on the insert following Page 34. Circle No. 838.

Well Pumping Improved By New Motor

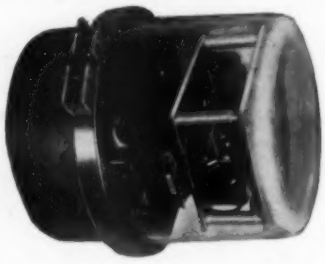
U. S. Electrical Motors Inc. recently introduced a new submersible motor designed especially for water-well pumping, and incorporating standardized NEMA mounting dimensions. The motor is of "wet" type construction, and is reported immune to such hazards as leaky joints, wear of seals, condensation, impurities and vibration. Copper windings are encased in a plastic armor which is impervious to water within the motor.

To guard against internal corrosion, the motor is filled with a highly stable emulsion of oil and water. The oil particles deposit on the metal surfaces, preventing corrosion. Because of this water/oil emulsion within the unit, there is never any need to lubricate the motor.

A control box with a heavy enclosure and hinged lid is provided with each single phase submersible motor. This control box contains the starting capacitator, relay, overload device, motor data, wiring diagram and connection terminals.

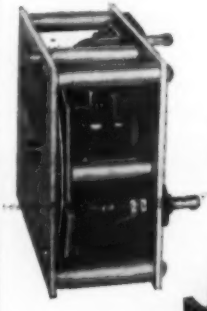
The new motor is available in ratings from 1/3- to 2-hp, single phase, and 1½- and 3-hp, 3-phase. It is described in *Bulletin F*-1870. For your copy, write U. S. ELECTRICAL MOTORS INC., BOX 2058 TERMINAL ANNEX, LOS ANGELES 54, CALIF., or you may use the Post Card on the insert following page 34. Circle No. 840.

TIME-O-MATIC FLASHERS JACK MOUNTED

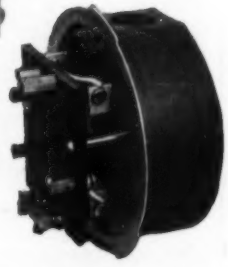


Time-O-Matic Jack Mounted Flasher in Standard Meter Case

Single or two circuits, every model with built-in eliminators. Available with standard meter case (above) or separately with Jack mounting panel (below).



Time-O-Matic Jack Mounted Flasher Only



Time-O-Matic Jack Panel in Meter Case

SPECIFY DEPENDABLE TIME-O-MATIC

↓

"A Sign of Good Control"

•

TIME-O-MATIC CO.

1108 Bahls Street

Danville, Illinois

Purchasing News

Combats Corrosion in Sewage Treatment Plants

Russ Hersam, general sales manager for Prufcoat Laboratories, Inc., of New York City, supervises an application of the new anti-corrosion, hot spray vinyl.

Guard against corrosion in your municipal sewage treatment plant with a new hot spray vinyl introduced by PRUFCOAT LABORATORIES, INC., 50 E. 42ND ST., NEW YORK 17, N. Y. The new vinyl provides four mils in a single spray pass. One prime and one hot spray coat give from 5- to 6-mil total thickness, sufficient for most corrosion protection work. A multiple pass spray

(Continued on page 220)

PROVED PERFORMANCE

in over 300 plants with a daily capacity of 1¾ billion gallons...

Glazed Fire Clay
TILE FILTER BOTTOMS

Leopold Duplex Filter Bottoms are getting more popular every day. And for good reasons, too. They last longer, perform better, and are unequalled in economy. Want more details on this "performance-proved" filter bottom? Write us today. No obligation.

F. B. LEOPOLD CO., INC.
2413 W. Carson Street, Pittsburgh 4, Pa.

STEEL

Every Kind
Quick Delivery

Plates, Structurals, Bars, Sheets, Tubes, etc. Carbon, Alloy, Stainless Steels, Babbitt Metal.

RYERSON

Joseph T. Ryerson & Son, Inc. Plants: New York, Boston, Philadelphia, Charlotte, Detroit, Cincinnati, Cleveland, Pittsburgh, Buffalo, Milwaukee, Chicago, St. Louis, Seattle, Spokane, Los Angeles, San Francisco

Remember:
the VALVES you buy today may have to be maintained by your GRANDCHILDREN!

Specify
IOWA because...

you can always count on Iowa for a lasting source of replacement parts . . . and products that service easily.

Look for These Features:

Double disc, parallel seat . . . positive wedging action for efficient, no-leak closing . . . gates hung loosely from stem nut—no binding . . . rugged, time-proved design means long life, low service costs . . . available with bell, flange, or mechanical joint connections to fit any existing or planned installation . . meet all A.W.W.A. specifications.

IOWA gate valves . . . for details, phone, wire or write:

IOWA
VALVE COMPANY
A subsidiary of James B. Clow & Sons
Oskaloosa, Iowa

(Continued from page 219)

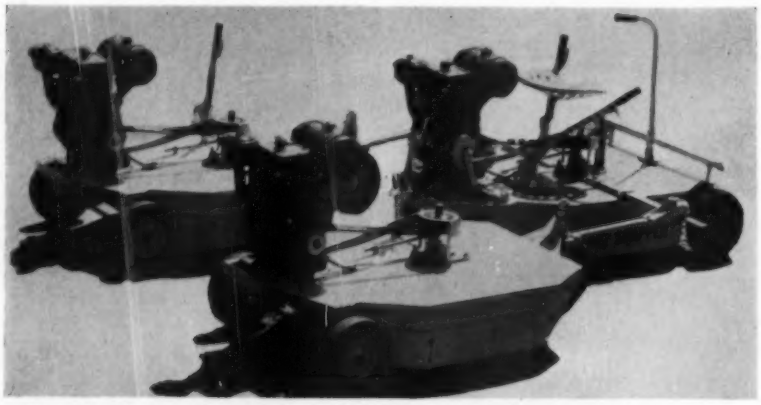
application provides vinyl thicknesses in the 10- to 15-mil range without runs or sags.

The company's anti-corrosion field men are prepared to give specialized customer service for the hot spray vinyl. For complete information, write the manufacturer directly, or you may use the Post Card on the insert following Page 34. Circle No. 851.

Oliver Corp. Announces Profit Increase

Important increases in sales and profits for the first six months of the fiscal year, are announced by A. King McCord, president of The Oliver Corp., 400 W. Madison St., Chicago 6, Ill. Net sales of the regular products of this large farm and industrial equipment manufacturer amounted to $48,267,000, an increase of 22% over the corresponding period in 1954. Total sales—regular and defense products—were $69,022,000 for the six months ending April 30, 1955, an increase of 12% over the same period last year.

New Tow Mowers Speed Lawn Maintenance



These two Snapper Tow-Mows are attached to a Big Snapper mowing machine.

Attach one or more Tow-Mow rotary mowers to a Big Snapper mowing machine or to any type of truck, tractor or jeep. The self-powered unit cuts a full 36-inch swath quickly and easily. It works equally well with tough weeds or tender grass on golf courses, cemeteries, and municipal school and hospital grounds.

When two Snapper Tow Mows are hitched to a Big Snapper, a cut of 100 inches is obtained. This allows a 4-inch overlap on the three swaths. When five Snapper Tow-Mows are pulled by a jeep or truck, you get a cutting swath of over 14 feet.

The new Tow-Mow is powered by an 8-hp, 4-cycle, air-cooled engine, and is available with a leaf-mulching attachment. It is described in literature from

For Civil Defense:—

SWIFT

Rescue Truck Bodies and Rescue Trailers

Complete with rescue tools, FCDA specifications

All rescue equipment is quickly accessible through full-height doors at front and rear and smaller openings on each side. A single remote-control lock release quickly unlocks all doors.

Write for circular

Swift All Steel Body Co., Inc.
106 Hoyt St. Saginaw, Mich.

End **FLOOR MOPPING PROBLEMS NOW**

Floor-King Mopping Outfit for mops to 36 oz.

specify *Geerpres* Mop Wringers with the amazing service record!

With Geerpres, mops last longer and do more work. Interlocking gearing provides controlled, powerful squeezing action to force mop down and eliminate all splashing. Fast, splash-free operation speeds mopping, cuts costly labor time.

Geerpres wringers are ruggedly constructed of the finest materials for long, trouble-free life. Electro-plated finish on all wringers is exclusive with Geerpres. Yet they are light, compact and easy to handle on ball-bearing, rubber casters.

Sizes and styles for every mopping need. Complete line of accessories, too. Write for complete catalog or see your local jobber.

GEERPRES WRINGER, INC.
P.O. BOX 658 MUSKEGON, MICHIGAN

SOUTHERN SAW WORKS, ATLANTA, GA. For complete information, write the manufacturer directly, or you may use the Post Card on the insert following Page 34. Circle No. 850.

Low-Cost Boom for Tree Trimming

Tree workers and line clearance men may now have a higher-than-ever degree of maneuverability and safety with the use of the Tree King. The exceptionally low cost of this aerial device is made possible by mass production methods, adopted for the first time in the manufacture of articulated aerial booms.

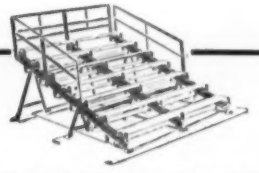
The Tree King, another in the line of Sky-Workers put out by the Maxwell Equipment Co., may be mounted on a conventional truck chassis, enabling a crewman at the controls to place himself at a comfortable working height of 45 feet from the ground. Horizontal working reach from the turret is 32 feet with a working load of 300 pounds. The lower boom, moving through an overhead arc of 135°—45° past vertical—materially reduces operating time in reaching above, between, and behind utility lines.

The Tree King keeps men working without interfering with normal traffic.

The unit, designed to assure low operation and maintenance costs, offers standardization of parts, simplified structural design, use of lightweight aluminum alloy, few working parts, and a simplified hydraulic system requiring low operating pressure.

For detailed information, write directly to the MAXWELL EQUIPMENT CO., FORD ST., MILFORD, CONN., or you may use the Post Card on the insert following Page 34. Circle No. 829.

★ ★



Single Section Model 6 Portable Bleacher

SAFE PORTABLE SEATING

With Hussey Patented, Portable, Steel Bleachers and Grandstands, one set of seats will take care of both your indoor and outdoor needs. They cannot collapse and can be erected and taken down faster and easier than any other stand on the market. Low in cost. 6, 10 and 15 tier 12 foot sections IN STOCK. Other sizes to order.

ROLL-OUT GYM SEATS. Exclusive all-enclosed deck, smooth, no-jam, easy operation, fold back against the wall when not in use. Ideal for new or old gyms.

FREE CATALOGS AND PRICES ON REQUEST. WRITE TODAY.

Iron-workers HUSSEY Since 1835

HUSSEY MFG. CO., INC.
556 R. R. Ave., North Berwick, Me.
Also mfrs. of Water Sports Equipment, Flag Poles, and Miscellaneous Iron.

A Practical Sewage Plant for the Small Community -The SPIRAGESTER

Simple Construction — Flexible Operation — Efficient Performance

The Lakeside Spiragester gives the small community a sewage treatment plant combining the best in engineering with bargain prices. It provides a self-contained plant that your community can afford.

- **It is simple**—It places Lakeside's Spiraflo Clarifier over a digestion tank. It combines the simplicity of an Imhoff tank with flexibility and control that no Imhoff tank has. Note the drawing below.
- **It is engineeringly sound**—Operating on proved principles of clarification and separate sludge digestion. You aren't risking your community reputation with an untried experiment.
- **It is easy to operate**—There are no intricate expensive mechanisms to get out of order.
- **And it is farsighted**—When your community grows, as it surely will, and you have to build a larger plant, you can put a floating cover on the Spiragester and turn it into a digestion tank, and then use our Spiraflo Clarifiers for separate primary settling.

Get the full story of the Spiragester by writing for additional information. If you have a larger plant that needs improvement, our engineering department will be glad to help you without obligation. Just drop us a note:

WRITE FOR FREE BULLETIN NO. 135 ON THE SPIRAGESTER

LAKESIDE ENGINEERING CORPORATION
222 W. Adams St. Chicago 6, Ill.

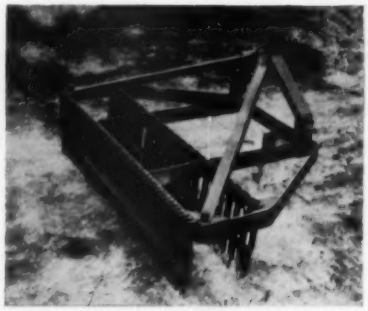
Purchasing News

Versatile Rake Attachment for Tractors

Not only is the Pulver-Rake able to do unlimited and different types of jobs, it has reduced labor costs over 50% as well. The rake, which is completely automatic and attaches directly to a tractor, can be pushed or pulled, raised and lowered, and adjusted to any angle. Thus it is able to work in very confined areas where it is impossible to turn a tractor.

The many jobs the rake can perform include: grading, leveling and finish-grading; spreading of materials; clean-ups of weeds, rubble, and heavy stones, and particularly of beaches; sodding; snowplowing; and limited backfilling where large equipment cannot be used.

The implement can be used with any tractor that provides a three-point hydraulic hookup. One man can make the attachment in less than two minutes.



The rake's front teeth which pulverize and cut are offset to the second row of teeth which drag and spread.

Models start at a 5-foot, 6-inch swath width.

For additional information, write directly to O & S Bearing and Manufacturing Co., 777 West Eight Mile Road, Whitmore Lake, Mich., or you may use the Post Card on the insert following Page 34. Circle No. 831.

In Rome, Italy

Moto-Paver resurfacing airport at Rome, Italy

or Rome, N.Y.

Moto-Patcher repairing street, Rome, N. Y.

Moto-Paver and Moto-Patcher Speed the Job—Cut the Cost

In Rome, Italy, the main runway of the Ciampino Airport was completely resurfaced in two weeks recently with a single Moto-Paver. This job was accomplished while the runway was in daily use, and could be worked on only three hours each day.

In Rome, New York, both the Moto-Paver and the Moto-Patcher have delivered cost-cutting performances in resurfacing and patching streets respectively. These are but two examples of how the Moto-Paver and Moto-Patcher are speeding the job and cutting the cost on road, street and airport jobs in all parts of the U. S., Canada, South America, Europe and Africa.

New Bulletin MP-55 will be sent on request.

HETHERINGTON & BERNER INC. • *Engineers—Manufacturers*
737 KENTUCKY AVENUE INDIANAPOLIS 7, INDIANA

Enlarged Prints Made Directly from Microfilm

This combination desk-top microfilm reader and photo copier makes enlargements directly from the microfilm. Called the Inspector "200", it is offered by the Filmsort Division of the Dexter Folder Co., Pearl River, N. Y.

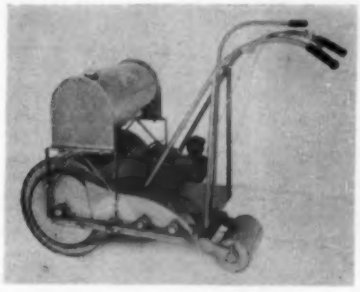
Utility Roller for City Chores

A power roller that municipal department heads will be sure to borrow from each other is the Roll-Master, especially designed to do the many small jobs in-

Purchasing

voived in construction operations. It will find use for hot or cold street patching, off-street parking lots, parks and playgrounds, tennis courts, and for rolling municipal grass plots and golf courses.

The machine, which easily pulls itself up into the truck when it must be moved from one area to another, offers up to

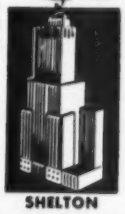


The ½-ton utility Roll-Master.

1,000 pounds of weight. A water tank for hot asphalt provides extra weight needed for other jobs.

For detailed information, write the HARDSOCG PNEUMATIC TOOL CO., OTTUMWA, IOWA, or you may use the Post Card on the insert following Page 34. Circle No. 826.

EAST SIDE
WEST SIDE
ALL 'ROUND
GRAND CENTRAL • RADIO CITY • TIMES SQUARE
NEW YORK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KING EDWARD

Write Hotel Direct or Call Your Local Travel Agent for Reservations.

Teletype NY 1-3601

* * *

Comfortable Rooms
Sensible Rates
TV Available
Air Conditioning
Central Locations
Fine Food
Friendly Hospitality
Conventions
Garage —AAA
(At the Shelton Enjoy the Free Pool and Monte Proser's "La Vie")

BE SURE TO STOP AT ROYAL CREST HOTELS

GARDEN STATE PARKWAY pioneers a new approach to toll collection

The 168 mile Garden State Parkway uses only Taller and Cooper Toll Booths and Collection equipment.

New Jersey's newest toll turnpike is the nation's longest superhighway using a barrier toll system, with each type of vehicle paying a fixed toll at specific locations, regardless of distance travelled. On other superhighways, motorists pay on the basis of both the vehicle type and the distance.

Each system has its own advantages. And each works best with a Taller & Cooper toll collection system designed specifically for it.

T. & C. Toll Booths and Collection equipment form a modern, integrated system with an answer for every toll collection problem.

WRITE TODAY for design and construction details.

TOLL BOOTHS
•
TOLL COLLECTION SYSTEMS

TALLER & COOPER, INC.
ENGINEERS • MANUFACTURERS
75 FRONT STREET • BROOKLYN 3, N. Y.

Taller & Cooper Toll Collection Equipment Safeguards Revenues on Every Major Toll Facility in the U. S.

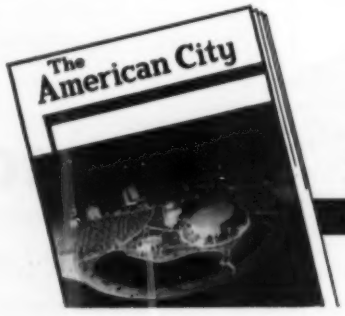
ONE MAN, THREE TITLES, THREE JOBS

How a small town buys municipal equipment

MR. W. O. MANN does almost everything in Siler City, North Carolina (population 3,000). His official title is City Clerk, but don't let titles fool you. He is also Water Superintendent and Street Superintendent.

When Siler City needs equipment, Mr. Mann recommends purchases to the mayor and five commissioners. As in most other small town governments, these officials are elected by the voters and serve in a part-time capacity. Purchases must have their approval. In this way the City Clerk has bought Badger water meters and an International Harvester tractor with a Henry backhoe attachment. "*Any time I am interested in new equipment, I look for it in* THE AMERICAN CITY," says Mr. Mann.

Are men like Mr. Mann seeing your advertising? You can increase your sales to city and town governments by investing your advertising dollars in THE AMERICAN CITY—the magazine that reaches all municipal departments.



The American City

470 Fourth Avenue, New York 16, N. Y.

Purchasing

Prepare Now for Winter Ice

Don't wait until winter weather is at your doorstep to provide for an effective ice-control program, advises the BAUGHMAN MFG. CO., 150 SHIPMAN ROAD, JERSEYVILLE, ILL. This company is offering two new ice-control units, the Model 55 Salt Miser (shown below) and the Model 55-H Salt Miser, either if which is easily attached to the tailgate of any standard dump truck.

The Model 55 operates on an economical auxiliary gasoline engine, and will spread salt, sand, chloride and other ice-control materials. The operator controls the spreading operation by means of a conveniently located hand clutch. Material fed into the 200-pound capacity

hopper feeds into a volume-control valve, which regulates the amount of spread, and through a metering valve which feeds the material to the distributor blades.

The Model 55-H is powered by a hydraulic unit. The spreader remains in a horizontal position when the dump body is raised and lowered. Salt, sand and chloride slide into the intake opening of the spreader by gravity, for sure, dependable feed.

Detailed information on both units may be obtained directly from the manufacturer, or you may use the Post Card on the insert following Page 34. Circle No. 849.

New Goder Plant

Joseph Goder Incinerators, Inc., leading producers of incinerators for municipal, industrial and commercial applications, is now occupying a new plant located at 4241 N. Honore St., Chicago, Ill. The new building offers 28,000 square feet of floor space, with room for expansion to meet the company's continuing growth.

Here the all-hydraulic Hydrocrane replaces street lights. By telescoping boom in and out load can be positioned without moving crane an inch — particularly valuable in close quarters that restrict hoisting or lowering boom. Note how high the boom is mounted on "A" frame. You can set boom parallel to ground and poke the nose straight in and out of the spot where you're loading.

BUCYRUS ERIE HYDROCRANE Changes Boom Length While It Works—

noses in and out to speed all jobs

A boom with an 8-ft. telescoping section that can slide in and out hydraulically *while crane is working* — that's the made-for-municipalities feature you get with a Bucyrus-Erie Hydrocrane. Telescoping section extends or retracts *either while boom is stationary or during boom hoist or line hoist.* With this outstanding feature, operators have nosed boom into windows, over walls, between wires, under tree branches — quickly easing pipe, utility poles, hydrants, etc. into place.

Compact Hydrocrane a "Squeeze-In" Specialist

Extremely short tail swing (about 4½ ft.), low over-all height, and independent boom hoist plus boom telescope permit almost unbelievable maneuverability on erecting and material spotting jobs.

Make the "Reach" Test — Right On Your Job

Find out exactly what the telescoping Hydrocrane can do for you — put it to work laying water and sewer mains, erecting bleachers, planting trees, cleaning catch basins and storm sewers. Add up the minutes, hours, and dollars this reaching boom can save you. Arrange for a demonstration now.

67H55

BUCYRUS ERIE
South Milwaukee Wisconsin
1880 75 1955 YEARS OF SERVICE to Men Who Shape the Earth

About People

E. F. Fisher, president of **Gar Wood Industries, Inc.,** Wayne, Mich., announces the appointment of Milton G. Peck as vice-president and director of sales and advertising. Mr. Peck is the former sales manager of the electric industrial truck division of the Clark Equipment Co.

M. G. Peck

Doug Anderson is the new president of the **Southern California Advertising Agencies Association,** a 72-member agency group located on the West Coast. He is also president of the Anderson-McConnell Advertising Agency, Inc., of Los Angeles, placing advertising for the Flexible Sales Corp.

From G. F. DeCoursin, vice-president of sales for the **Four Wheel Drive Auto Co.,** Chicago, Ill., comes news of a new director, John G. Thompson, to head the company's Parts and Services Department. Mr. Thompson has spent the past four years with the Westinghouse Electric Corp.

New sales manager of the Post Division of the **Buffalo Steel Corp.,** Tonawanda, N. Y., is G. E. Shuttleworth, according to A. E. Klinger, president. In addition to sign and fence posts, the company offers angles, channels, sub-purlin roofing sections and reinforcing bars.

Newest addition to the sales office of the **American Water Softener Co.** is Robert L. Seitz, recently appointed sales engineer. Mr. Seitz will locate at the firm's headquarters in Philadelphia, Pa.

A recent expansion of the sales and service facilities of **B-I-F Industries, Inc.,** Providence, R. I., saw the appointment of M. H. Strickland as manager of industrial sales for the company's Chicago district. Mr. Strickland will have charge of the complete industrial line of equipment for Proportioneers, Inc., a B-I-F subsidiary. A new office in Milwaukee will be headed by Harold D. Bugg, while another new office in Indianapolis will be under the direction of Byron Anderson. In Minneapolis, Thomas Voegtli has been added to the sales-service department, and in Kansas City, Mo., Harry McBride has joined the B-I-F sales force, and Stuart Caton, the service department.

Two subsidiaries of James B. Clow & Sons, the **Iowa Valve Co.,** of Oskaloosa, Ia., and the **Eddy Valve Co.,** of Chicago, Ill., announce the appointment of new sales representatives. Martin A. Killeen will sell Iowa valves and hydrants in California and Arizona, with headquarters in San Francisco. Grant Nelson will represent Eddy Valve in Eastern Pennsylvania, Maryland, Delaware, Southern New Jersey and Virginia.

A vice-president of the **G. H. Tennant Co.,** Orville C. Hognander, has been elected to the company's board of directors, according to Lloyd Hale, president. Located in Minneapolis, Minn., the firm manufactures specialized municipal maintenance equipment.

When Robert J. Laidlaw retires as Cleveland district manager for the **Worthington Corp.,** Harrison, N. J., he will be succeeded by William J. Davies. Mr. Davies has been with Worthington for the past 18 years.

Rex Hamaker, president of the **Reed Roller Bit Co.,** Houston, Tex., announces the appointment of Kenneth M. Rice as advertising manager. Mr. Rice comes to Reed from the Krafco Corp., where he served as assistant vice-president of sales.

At the **Fischer & Porter Co.,** Hatboro, Pa., four division managers have been appointed vice-presidents. The new executives include Robert A. Stern, of the Data Reduction and Automation Division; Louis H. Aricson, of the International Division; Nathaniel Brewer, vice-president of research; and Edward J. Querner, vice-president of manufacturing.

After some 26 years with the **Allis-Chalmers Mfg. Co.,** Milwaukee, Wis., Arthur E. Thode has been appointed industrial advertising manager of the company's Tractor Division. He last served as supervisor of A-C industrial sales literature.

A. E. Thode

Richard G. Robbins, vice-president and general sales manager of **Hubbard and Co.,** Pittsburgh, Pa., announces a number of new appointments and transfers in the company's sales department. P. J. Martini replaces P. L. Black at Hubbard's Atlantic Division. Mr. Black has been transferred to the Southeast Division. B. J. Williams takes over as sales representative in the Southwest Division under George T. Brundrett. R. A. Enke has been assigned to Hubbard's Midwest Division, and R. E. Peterson has been named Lightning Arrester and Street Lighting specialist for both the Midwest and Southwest Divisions. Hubbard's Indiana-Michigan territory, previously covered by Mr. Peterson, has been assigned to Gordon D. Thorpe. W. W. Ege, Jr. has been transferred from the Southeast Division to special duties in the engineering and research department at Hubbard's Chicago plant.

Paul G. Dunmire, formerly chief engineer for **Smith-Blair, Inc.,** South San Francisco, Calif., has been named vice-president in charge of the company's Manufacturing Division. He is succeeded as chief engineer by James C. Morriss, Jr.

P. G. Dunmire **J. C. Morriss, Jr.**

Brook J. March will manage sales for the Fire Apparatus Division of the **Ward LaFrance Truck Corp.,** Elmira, N. Y., according to F. Norman Tracy, vice-president and general manager of the company. Well-known in the firefighting field, Mr. March was formerly associated with National Foam System, Inc., and is a member of the National Fire Protection Association.

Three new vice-presidents are announced by **Consolidated Chemical Industries Inc.,** Houston, Texas. They are Charles M. Hickey, manager of manufacturing for the company's Southern Division; Sam S. Emison, sales manager, Southern Division; and Jennings C. Crowder, general manager, New England and Pacific Divisions.

From the **Henry Pratt Co.,** Chicago, Ill., comes news of a new president, E. B. Cottingham, to succeed S. B. Smith, recently elected chairman of the board of directors. Other officers of the company are A. C. Johnson, secretary-treasurer; W. T. Herren, vice-president of construction; W. J. Woolley, vice-president of sales; and V. H. Haase, assistant secretary-treasurer.

Richard H. Frizzell, new president of the Wire Reinforcement Institute, Washington, D. C., is also sales manager of the structural products department of **Wickwire Spencer Steel,** Buffalo, N. Y. Wickwire Spencer is a division of the Colorado Fuel and Iron Corp.

(Continued on page 228)

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(Continued from page 226)

Paul C. Kreuch has been promoted from assistant vice-president to vice-president of the **Rockwell Manufacturing Company's** Meter and Valve Division. He is joined by another new vice-president, Eugene F. Foubert, formerly manager of Industrial Relations. Mr. Foubert is now vice-president of Industrial Relations. Main offices of the Rockwell Mfg. Co. are located in Pittsburgh, Pa.

E. F. Foubert **P. C. Kreuch**

Latest addition to the staff of D. B. Steinman, consulting engineer, is Michael A. Spronck, formerly executive field editor of *Construction Equipment* magazine. Mr. Spronck will serve as administrative assistant to Dr. Steinman, well-known designer of long-span bridges.

The **Electric Storage Battery Co.,** Philadelphia, Pa., has named H. H. Warren assistant sales manager for its Exide Industrial Division.

Succeeding Richard H. Koehler as sales promotion manager of the **Le Roi Division,** Westinghouse Air Brake Co., Milwaukee, Wis., is Glenn W. Graf, a member of the company's sales promotion department. Mr. Koehler was recently appointed director of advertising and publicity for WABCO, and has been transferred to the company's headquarters in Pittsburgh.

From the **Badger Meter Mfg. Co.,** Milwaukee, Wis., comes news of the appointment of a new manager, Norman H. Abrams, to head the company's Southwest Sales District. Mr. Abrams has been with the Badger Meter Mfg. Co. for the past twenty-nine years.

N. H. Abrams

Kenneth C. Andersen, president of the **Seaman-Andwall Corp.,** Milwaukee, Wis., announces the appointment of William D. Murphy as executive vice-president. Mr. Murphy, formerly vice-president, has been associated with the oganization for the past 12 years. James G. Morris will manage sales for Seaman-Andwall Industrial Division products.

As vice-president of operations for **ALCO Products, Inc.,** Schenectady, N. Y., James J. Reynolds will be in charge

of all manufacturing, procurement and material-control operations, as well as employee services and industrial relations. He will be assisted by G. Y. Taylor, new manager of employee services.

Francis S. Friel, president of **Albright & Friel Inc.,** Philadelphia consulting engineers, has been elected president of the Pennsylvania Section of the American Water Works Association. Mr. Friel is also president of the American Institute of Consulting Engineers. He recently returned from Paris, France, where he attended a meeting of the Fifth International Congress on Large Dams.

J. C. Brigham, formerly manager of the Division of Technical Services for **Wallace & Tiernan Inc.,** Belleville, N. J., has been appointed chief engineer. Succeeding him in Technical Services is L. E. Demler.

H. R. Fosnot, sales manager of the **Graver Water Conditioning Co.,** New York City, announces the appointment of J. D. Crell as sales engineer for the company's New York City Sales District. He also reports the appointment of two new sales representatives, the Allen-Shuff Corp., of Memphis and Nashville, Tenn., and the Atlas-Misrock Co., of Richmond, Va.

K. D. Means, an assistant vice-president of **Koppers Co., Inc.,** Pittsburgh, Pa., has been appointed general manager of the planning department of the company's Tar Products Division. This Division, incidentally, has a new manager of operations, John H. Redmond, who has been associated with Koppers for the past seven years.

Water-Works Men Hold Conference

(Continued from page 9)

needed in the water industry. Raymond J. Faust, executive assistant secretary of the AWWA, reported trying to get pictures for a water-safety manual. The water works furnishing the pictures had to borrow the "hard hats" and foot guards for the men in the pictures. He also reported no advertisements in any water-works periodicals or municipal magazines showing workers with safety goggles. Water-works construction accounts for 49% of all utility injuries.

Thomas F. Allen, safety engineer, Chicago Department of Water and Sewers, stated that "hard hats," safety goggles, and safety shoes are the simplest part of a safety program. He urged that safety be built into new structures, and described in detail the Chicago safety program.

Public relations in the water-works field was analyzed by Joseph Rosapepe, of Dudley, Anderson, and Yutzy, New York City public relations consultants. He stated that the water superintendent must overcome the public's deep-rooted impression that water is "free." He must recognize and show the public that water for potable purposes is a manufactured product and not simply a delivery service. He urged improved relations with the press, with readiness to suggest feature stories, and special preparation for various civic groups. He called particular attention to the excellent work that Superintendent Robert E. Hansen has done in Mt. Clemens, Mich., and compared it favorably with professional public relations work done elsewhere.

New officers installed at the meeting include Frank C. Amsbary, Jr., president, and Paul Weir, vice-president. Mr. Amsbary is vice-president and secretary of the Illinois Water Service Company, Champaign, Ill. Mr. Weir is general manager of the Atlanta (Ga.) water works. Dale Maffit, general manager of the Des Moines (Iowa) Board of Water Supply, is the outgoing president.

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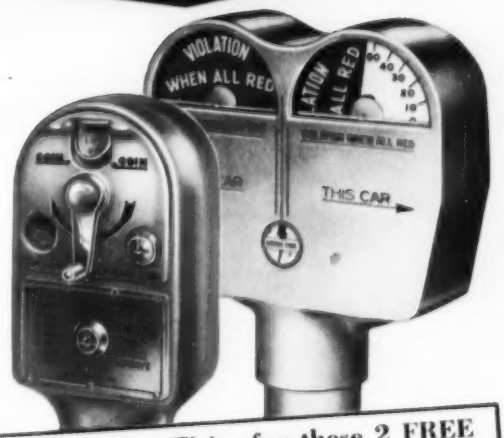

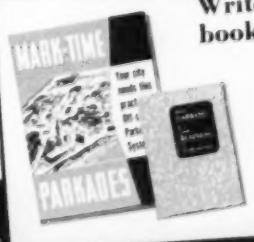

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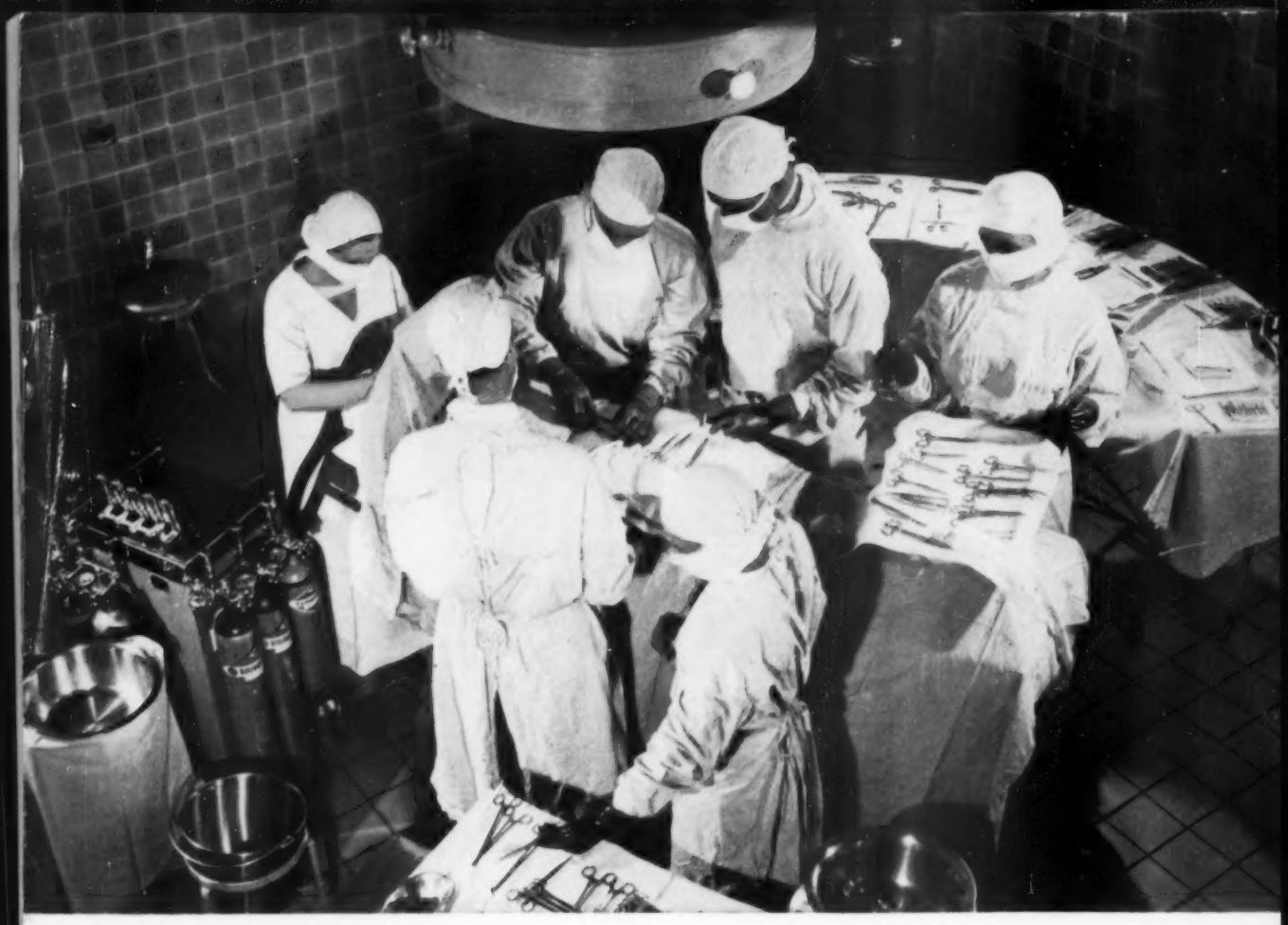

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